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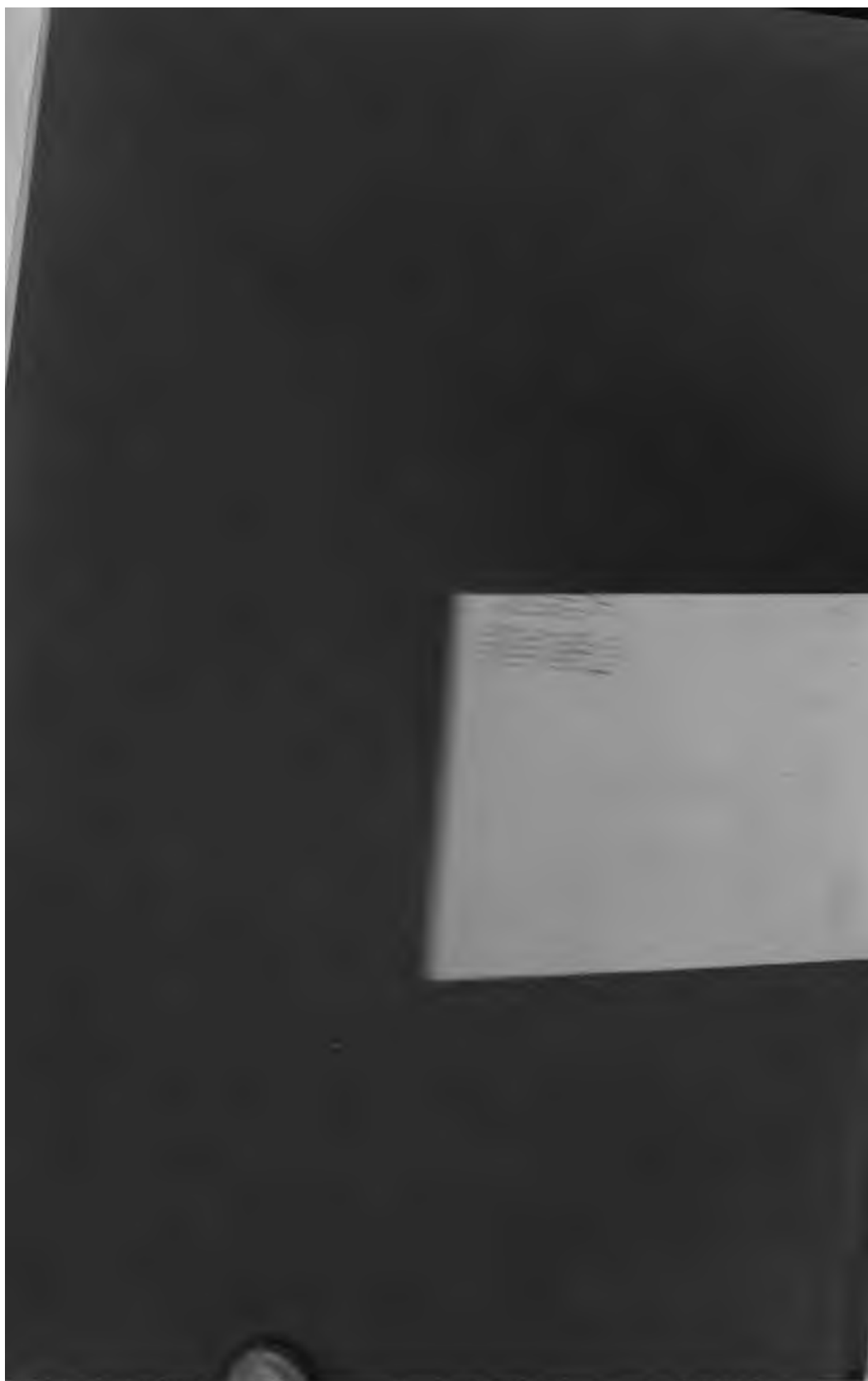
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Inspector of Mines

Annual Report

to the
Governor of the
State of Ohio
for the Year

1904



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OF THE

Chief Inspector of Mines

TO THE

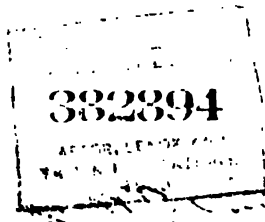
Governor of the State of Ohio

FOR THE

YEAR ENDING DECEMBER 31, 1904

GEORGE HARRISON
CHIEF INSPECTOR OF MINES
COLUMBUS, OHIO

COLUMBUS, OHIO:
F. J. HEER, STATE PRINTER,
1905.



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PERSONNEL OF THE STATE MINING DEPARTMENT.

1904.

Chief Inspector of Mines.

GEO. HARRISON.....Wellston, O.

DISTRICT MINE INSPECTORS.

FIRST DISTRICT.

ED. SMITH.....Logan, O.
Succeeded by Thos. Waters, Wellston, O., June 1, 1904.

SECOND DISTRICT.

D. H. WILLIAMS.....Glouster, O.

THIRD DISTRICT.

JOHN WINEFORDNER.....Duncans Falls, O.
Succeeded by Lucius W. Hull, Murray, O., June 1, 1904.

FOURTH DISTRICT.

THOS. MCGOUGH.....Bridgeport, O.

FIFTH DISTRICT.

W. H. TURNER.....Cambridge, O.

SIXTH DISTRICT.

JAMES P. DAVIS.....Salem, O.

SEVENTH DISTRICT.

W. H. MILLER.....Massillon, O.

Chief Clerk.....R. J. GREENE, Columbus, O.
Succeeded by Thos. P. Wangler, Columbus, O., November 15, 1904.

Corresponding SecretaryMARY KINCAID, Columbus, O.

LETTER OF TRANSMITTAL

COLUMBUS, OHIO, June 23, 1905.

To His Excellency, HON. MYRON T. HERRICK, Governor of Ohio.

DEAR SIR: As provided for by Section Two Hundred and Ninety-three of the Revised Statutes relating to Mines and Mining, I have the honor of submitting to you the Thirtieth Annual Report of this Department.

It has previously been the custom for all statistical information contained in the report to begin and end with the Calendar Year, while all other matter has covered the Fiscal Year, ending November 15, and all information pertaining to the inspection of mines, accidents occurring, and other matters of information transpiring between November 15 and January 1, was carried over to the report covering the following Calendar Year.

The statistical portion of the present report covers the calendar year 1904, but all other information contained in it embraces the period from November 15, 1903, up to and including December 31, 1904. In the future it is intended that the whole report will cover the calendar year.

Hoping this change will meet with your approval, and thanking you for your kind and valuable counsel in directing the affairs of the department, and your great interest in the mining industry and the safety of those employed in the mines, we are,

Very respectfully yours,

GEO. HARRISON, *Chief Inspector of Mines.*

REPORT OF CHIEF INSPECTOR.

COLUMBUS, OHIO, June 23, 1905.

To His Excellency, HON. MYRON T. HERRICK, Governor of Ohio.

SIR: In submitting to you this report we would feel ourselves lacking in our sense of duty if we failed to call your attention to the necessity of a very urgent need of a general revision of the Mining Laws of the State, and the enactment of more stringent measures requiring proper and necessary discipline amongst all employees, and more clearly setting forth the duties and responsibilities of those in charge of mines.

The numerous tables of figures given in this report clearly shows the increasing importance of the mining industry in the State of Ohio, both by the increase in the number of mines and miners, the production of coal, introduction of machinery into the mines, and, last but not least in its importance, is the alarming and unnecessary increase in the sacrifice of human life and limb, much of which we believe could be avoided without necessarily adding one single mill per ton to the cost of the production of coal.

Notwithstanding that 67.3% of the entire production of coal of the State is mined by electric and compressed air machines, and electric coal hauling motors are in general use, there is not a word in the laws governing the operation of mines that has the least application to the dangers of electric wires, mining machines, or hauling motors, in fact the word "Electricity," or "Mining Machine," is not to be found in the Mining Laws, which, no doubt, is attributable to the fact that at the time the present Mining Laws were enacted electricity in the mines was practically an unknown experiment. Now the greater percentage of our coal is produced from its use, and the amount of machinery introduced in the mines is rapidly on the increase yearly.

Many lives have been lost by coming in contact with live electric wires and by men being wound into chains, cogs and machinery of coal cutting machines and many limbs are sacrificed in that way. We even have record of a case during the year where a man was drawn into the machinery of a chain mining machine, and could not be extricated until a physician went into the mine and amputated the limb. It is not necessary to state that the man lost his life from the effects of this terrible experience. The dangerous parts of mining machines should not be exposed, but should be shielded by some device; some of them are shielded, but in nine cases out of ten those who work with them are

permitted to remove the shields and throw them away, because they are a little troublesome to handle. The law ought to require proper shielding of the dangerous parts of mining machines, and it ought also to require a safe and proper system of stringing electric wires in any part of a mine where men are liable to come in contact with them. Indisputable evidence recorded in this office shows that a very large percent of all accidents is due to the wanton carelessness on the part of the victims themselves and a want of proper diligence and performance of duty of those in charge of the mines which can be remedied by the enforcement of proper rules.

While Ohio has so far enjoyed immunity from serious mining calamities such as has been the misfortune of other States, caused by the reckless use of blasting powder and resulting in coal dust and smoke explosions with serious loss of life, this Department is in constant fear of such a disaster in some part of the State where coal is blasted off the solid, and where the most careless and excessive use of blasting powder is indulged in, and while every effort possible has been put forth by us to prevent such calamities, but little success has been attained, as there is no specific law to apply.

There is no other subject so worthy the attention of the Legislature in their duty of framing and placing on the Statute Books proper legislation for the protection of life and property than that which the mining industry of to-day requires if we would place ourselves in the spirit of development and progress which the intelligence and humanity of this 20th century demands.

To avoid conflict and unnecessarily take up the time of the General Assembly, we would suggest the appointment of a Commission on which the parties directly interested will constitute a part and have full and equal representation for the purpose of drawing up and presenting to the next General Assembly such measures as are deemed necessary to meet the changed conditions of mining, and more adequately safeguard life and property.

We are pleased to testify to the willingness on the part of both operators and miners generally to do their part in this direction, and in the revision of the mining laws, in the interest of both, care should be taken to avoid inflicting undue burdens on either, or to place the industry in Ohio at a disadvantage with that of other States.

Respectfully submitted,

GEO. HARRISON, *Chief Inspector of Mines.*

SUMMARY AND COMPARISON FOR THE YEARS 1903
AND 1904.

	1903.	1904.
Number of pick miners employed.....	15,653	13,346
Number of day hands employed.....	11,562	12,759
Number of hands operating machines.....	1,949	2,297
Drillers, shooters and loaders.....	14,181	17,432
Total number of persons engaged in coal production.....	41,396	45,834
Average number of days pick miners worked.... }	170½	159
Average number of days machine miners worked }		169
Number of tons of coal produced by pick.....	10,012,335	8,037,360
Number of tons of coal produced by machinery.....	14,560,931	16,546,455
Total number of tons of coal produced.....	24,573,266	24,583,815
Per cent of pick-mined coal.....	40.7%	32.7%
Per cent of machine-mined coal.....	59.3%	67.3%
Number of coal producing counties.....	30	29
Gain in output over the year 1903.....		10,549
Number of fatal accidents.....	124	118
Number of serious accidents.....	308	316
Number of minor accidents.....	128	121
Total number of casualties.....	560	555
Per cent of deaths per 1,000 employed.....	2.99%	2.57%
Injuries per 1,000 employed.....	10.53%	9.54%
Estimated amount of powder consumed in the production of coal by the number of firms reporting (kegs).....	223,708	264,714
Total number of new mines opened up.....	86	101
Number of mines suspending operation.....	42	57
Number of mines reported abandoned.....	18	37
Total number of mines in operation.....	912	959
Total number of mines in the state.....	954	1,018
Number of mines in which mining machines were in use.....	188	243
Number of mining machines in use.....	774	975
Number of counties installing use of machinery.....	18	19
Total number of inspections made.....	1,511	1,789
Number of sets of scales tested.....	188	230
Number of permanent improvements made.....	325	257
Number of maps filed.....	293	341
Number of tons of coal mined to the life lost.....	215,555	208,337
Total output of iron ore.....	12,995	20,652
Number of counties in which iron ore was produced....	2	3
Total output of fireclay produced.....	1,567,603	2,045,848
Number of fireclay producing counties.....	18	18
Number of counties producing limestone.....	37	38

One life lost to every 363 persons employed in mining of coal in 1903.
 One life lost to every 388 persons employed in mining of coal in 1904.
 One person injured in every 72 1-9 employed in 1903.
 One person injured in every 82 5-10 employed in 1904.
 Average tons of coal per year for each miner, 536.
 Average tons coal pick miners per day, per man, 2.6 tons.
 Average tons for each loader per day, per man, 4.

SPECIAL ARTICLES.

CIRCULAR LETTER ISSUED MAY 31, 1904.

TO THE MINE OPERATORS AND MINERS OF OHIO.

GENTLEMEN:— Having been honored with the appointment to the important position of State Mine Inspector, we highly appreciate the confidence reposed in us, and assume the duties with a full realization of the great responsibility and trust. It will be our highest ambition to endeavor to perform the duties of the office and apply the mining laws as fully and impartially as it is possible to do so, and we hope with the least possible friction with either operators or miners; in fact, we bespeak and hope for the kindly influence and combined assistance of all in endeavoring to secure to those connected with the great mining industry of Ohio the best possible results from the State Mine Inspection Department.

We have reached a period in the history of Coal Mining in Ohio when the most competent mine managers and most successful mine operators are pleased to testify that the truest economy in the production of coal is found in the application of methods of mining which make the conditions in their mines in advance of the requirements of the Mining Laws, rather than to be delayed in their operations and annoyed by an order of the Mine Inspector for the enforcement of the law. And in such cases it must be a pleasant, rather than an unpleasant duty, for an Inspector to visit and record the conditions of such mines, and pleasing to all those connected with them to afterwards read the report of the Inspector, to say nothing whatever of the advertisement in favor of good management.

It is well also to remember that we have reached a period when many of the coal seams in the state are being worked to a point of exhaustion, and in order to supply the demand for a commodity that contributes so much to the comfort and welfare of the people it is necessary to penetrate the earth to a much greater depth, at considerable more cost, greater danger, and possibly much more serious loss of life and property.

Many deep shaft mines have recently been opened in various part of the state, and the pent-up gases liberated to a greater extent than ever before, and the many small explosions occurring should be looked upon as the sounding of a positive alarm of the presence of greater danger to life and property; and the necessity of the application of the best possible methods of reducing the danger to a minimum.

Ohio has fortunately been comparatively free from serious mine explosions, but the catastrophe at the Harwick mine (which is a shaft, not as great in depth as a number of our shaft mines), on the 25th of January last, in the state of Pennsylvania, is a froceful reminder of the lurking danger resulting from the accumulation of carburetted hydrogen and other dangerous and deadly gases emitted from the stratas in deep shaft mines, and ought to prompt every mine manger to the most effective means of diluting and destroying their harmful influence. The Harwick calamity also reminds us of the dangerous results of allowing coal dust to be left in and accumulate in the mines, especially mines of a dry and dusty nature. We have evidences also that a number of valuable properties have been totally destroyed in Ohio by fires originating from spontaneous combustion of fine coal and other combustible matter left and accumulating in the mines. This being the case, this Department will certainly not be considered unreasonable in exercising its influence and authority in preventing as far as possible the practice of leaving in and storing away

fine coal and what is commonly known as "Bug Dust," which practice when permitted adds in more than one way an element of danger to life and property.

While the number of fatal and minor accidents is probably not as great in Ohio as in some other mining states, yet it is no less true that a large per cent of them is due, if not to deliberate and willful negligence, at least to a very great lack of ordinary care on the part of the victim, traceable in many instances to a want of enforcement of the proper discipline on the part of those in charge of mines, as laid down by the various sections of the Mining Laws covering their duties therein.

Accidents from this source, in and around the mines, are much more numerous than existing conditions warrant, and not only is great loss of life entailed but also distress and grief is brought upon families and connections of the unfortunate victims, to mention nothing of the unpleasant and expensive lawsuits which often emanate from such sources for damages. In order that the number of accidents occurring in mines may be reduced to a minimum every District Mine Inspector will make special effort to enforce Section 6871 of the Mining Law, by requiring the Management of Mines to be held responsible for the fulfillment of the law, and assisting them in the prosecution of any violation of it or any orders given by the mine foreman in conformity to the law.

The intelligent, practical miner should need no one to remind him of the necessity of complying with the requirements of the Mining Laws and securing himself against risks of falling roof and other sources to which accidents are attributable, and ordinarily does not; but there is a class of persons employed in the mines, a large number of whom are inexperienced and careless, for which some one ought to be responsible. Section 6871, referred to above, imposes a penalty punishable by fine and imprisonment for any employe to violate any Section of the Mining Laws, or to refuse to obey any order given by the management of a mine regarding the safety of that portion of the mine thereof where he is at work, and we feel it is the duty of every mine foreman to put in practice such discipline amongst the employes over which he has jurisdiction as to exact from them that necessary compliance with the law which will guarantee the greatest safety and best results.

True, the man who enters the mine as an employe, whether practical or otherwise, is supposed to assume all the ordinary risks incident to the employment as he would in any other calling, yet a large per cent of the labor element in many of the mines has had no previous practical experience, are unacquainted with the laws and customs under which they are expected to labor; unable to even speak the English language, and in several mines of the state—the number of which will gradually increase—each individual who enters the mine, in a sense, carries his own life in his hand, and by his precaution depends the lives of all others as well as that of his own, so that if there were no law on the subject it would not be unreasonable to request the Management of mines who employ such men, under such circumstances, to feel themselves responsible and under obligation to give them more than ordinary attention and care in disciplining and instructing such men to have proper regard for the protection and safety of their lives and the lives of others. One man may commit an act of indiscretion, or ignorantly commit some act by which the lives of every person in the mine is endangered.

There will be no harsh orders issued from this office; no unreasonable demands made; no radical or sweeping changes sought to be suddenly enforced; or arbitrary closing down of mines where the safety of the miners does not demand it; and when operators are disposed to be reasonable. But the most casual observer connected with the Mining Industry in Ohio will admit that the difficulties and dangers surrounding the operation of mines, and the occupation of those employed therein are gradually but surely rapidly increasing, and that if Ohio is to avert a repetition of the awful mining catastrophies that has been the misfortune of some of our sister states much greater diligence will be required by all concerned in the future than has

been paid in the past, and to that end we again earnestly hope for the assistance of both Mine Operators, Managers, Superintendents, Mine Bosses and Mine Workers, and wish to remind you that it will be "Too late to lock the stable door when the horse is stolen."

In conclusion we desire to say that we will be pleased at all times to have any one connected with the industry visit this office, and we will feel it a duty, in connection with the District Mine Inspectors, to give any information in our power regarding the operation and various methods of mining; and, furthermore, where any exceptional difficulties surround the operations of mining in any particular mine or locality, the benefit of the combined intelligence and varied experiences of the whole staff of Mine Inspectors connected with this Department will, if necessary, be at the service of the parties affected.

Very respectfully yours,

GEO. HARRISON,
Chief Inspector of Mines.

IMPORTANT RULINGS OF THE ATTORNEY GENERAL, AND THE
STATE MINING DEPARTMENT ON MATTERS OF SPECIAL
INTEREST AND IMPORTANCE TO THOSE ENGAGED IN THE
MINING INDUSTRY DURING THE YEAR.

COLUMBUS, OHIO, July 28, 1904.

HON WADE H. ELLIS, *Attorney-General, State of Ohio, Columbus.*

DEAR SIR:—This Department would be very much pleased to have your opinion as to its proper jurisdiction in regard to the La Belle mine, located in Jefferson County, Ohio. The La Belle mine is one of the oldest mining properties in the state; its main hoisting shaft, and also its second opening, are on the Ohio side, but its leading working places have been driven under the Ohio River and beyond it into the state of West Virginia, and its present coal production is entirely from under the soil of that state.

First: "Has this Department any jurisdiction beyond the low water mark on the Ohio side of the river?"

Second: "If this Department has no jurisdiction beyond that limit, can we co-operate with the West Virginia Mining Department and act jointly in the exercise of our respective duties there?"

This mine generates considerable carburetted hydrogen gas (explosive gas), and has a large area of old, worked-out territory, and in consequence requires special care and attention.

Yours very truly,

GEO. HARRISON,
Chief Inspector of Mines.

COLUMBUS, OHIO, August 15, 1904.

HON. GEORGE HARRISON, *Chief Inspector of Mines, Columbus, Ohio.*

DEAR SIR:—Your letter of July 28 received. You make two inquiries:

First: "Has this Department any jurisdiction beyond the low water mark on the Ohio side of the river?"

The jurisdiction of your Department is co-extensive with the territory limits of the state. From the early decisions of the Supreme Court of the United States, reported in 5th Wheaton, down to this time, it has been practically settled that the territorial limits of the state of Ohio are bounded on the south and east by low water mark of the Ohio River.

Second "If this Department has no jurisdiction beyond that limit, can we co-operate with the West Virginia Mining Department and act jointly in the exercise of our respective duties?"

In answer to this inquiry I would say that, in the situation you propose, co-operation between your Department and that of West Virginia is absolutely essential. Consultation and agreement between the two Departments would no doubt result in great benefit to all parties concerned. The only restriction at all on

such co-operation should be this: that orders made or directions given by the respective Departments within the limits of their respective jurisdiction should be promulgated separately by each Department, and not jointly.

Very truly yours,

GEORGE H. JONES,
Assistant Attorney-General.

NOTE:— After considerable correspondence with the Hon. J. W. Paul, Chief of the Mining Department of the state of West Virginia, arrangements were completed whereby joint inspections were to be made of this mine by the District Inspectors of this and the state of West Virginia, and similar orders given separately by each Department.

G. H.

The following report, made by Jas. P. Davis, District Mine Inspector and myself, is self-explanatory.

COLUMBUS, OHIO, July 30, 1904.

To The Peerless Coal & Mining Co., and Employees of the Big Walnut Mine, Salem, Ohio:

GENTLEMEN:— After repeated requests made by Mr. J. A. Case, of the Peerless Coal & Mining Co., and Mr. Wm. Tetlow, president of the Miners' Organization, in the Salem District, Mr. Jas. P. Davis, the District Mine Inspector, and myself have made a very complete examination of the Big Walnut mine, the Cherry Valley mine and the Leetonia mine in Columbiana county, and the Fairview mine in Mahoning county, with a view of ascertaining the relative conditions affecting the firing of shots and the necessity of shot firers or otherwise. We had been led to believe that some of the mines in that locality were of a very dry and dusty nature, and that great danger of dust explosions existed, more especially so in the Big Walnut mine; in that mine we were especially careful in securing all the facts, and, with the Secretary of the Local, Mine Committee and Mine Superintendent, visited every place suggested by them, as well as making a very general examination and inspection of the whole mine. Instead of finding a dusty mine, as reported, we failed to find a particle of dust except the dust from the drillings of the augur holes in the coal; in fact, every working place was more or less damp, and in many of them we found small quantities of water standing. We also found that the Big Walnut mine was the only mine in the locality where special shot firers were employed, and understand that it is a matter of controversy between the company and their miners whether those special shot firers shall be retained or dispensed with and whether the conditions are such as to make shot firers necessary.

"Fast shooting," or blasting coal off the solid, requires the use of much greater quantities of powder, and is always accompanied with greater danger than ordinary shooting where coal is first undercut, yet there are a number of districts in the state, notably the Jackson county and Massillon districts, where the practice is pretty general, and there is an increased disposition on the part of miners everywhere to dispense with mining, or undercutting, where it is possible to blast off the solid; this disposition and practice prevails to such an extent as to have a great tendency to increase the number of miners by placing a premium on unskilled labor and also in order to get a more marketable product, prompting coal companies to introduce coal cutting machines in thin coal seams and wherever the natural disadvantages does not absolutely exclude their installation, thus eventually militating against the

best interests of the miners by increasing their numbers and reducing the amount of manual labor in the mines as displaced by machinery.

In an examination of the Leetonia mine we found a drier mine, and in many instances the conditions more unfavorable for the miners firing their own shots than in the Big Walnut mine, yet the miners at the Leetonia mine fire their own shots, and we are very pleased to embrace this opportunity in complimenting the Leetonia miners in the very commendable system they have adopted and strictly enforced in their rule of shot firing. The man in the entry commences firing at the proper time, and as he ignites his fuse he calls to the men next to him in the rooms on each side of the entry; he then makes his way along the entry; the two men notified by him ignite their fuse and follow, giving warning to the two next in turn, and so on until all in the entry have ignited their fuse. Four feet six inches of fuse is used in each shot, and when the entry man is far enough to be out of danger he stops and stops every man in the entry at that point until all reach there, they then proceed out of the mine. Any man violating that rule is suspended from work for one week, and on a second offense is discharged.

We have no authority, neither do we take any part in deciding whether special shot firers shall be continued or dispensed with at the Big Walnut mine. We find, however, that there is no explosive gas to be discovered in that mine, no coal dust or any exceptional danger more than ordinarily encountered by miners in other parts of the state where solid shooting is practiced, and in consequence, even if we had the power to order shot firers at the Big Walnut mine or in the Leetonia District, it would be equally fair to the miners in other districts to order them where fast shooting was in practice.

Very respectfully submitted.

GEORGE HARRISON,
Chief Inspector of Mines.
JAS. P. DAVIS,
District Mine Inspector.

"FAST SHOOTING."

In the Salem, Leetonia and Washingtonville localities, the coal is mined on a run of mine basis (the only district in the State employing this method), solid shooting or blasting off the solid is the regular custom, and is practiced to the fullest extent. At the time examination was made there was not an inch of the coal that was undercut, and no pretence was made to do so, in fact we were informed by miners that it was impossible to undercut it with hand picks and that unless they were permitted to blast off the solid it would have to stay in the ground or be cut by mining machines.

Very heavy charges of powder are used and the blasting is done with about four or five feet of patent fuse in order to allow the miner to get a safe distance away from the blast, the force of the concussion sometimes bursting wooden brattices, stoppings and doors from their places and tearing roadways up and doing considerable damage to a mine.

After several weeks of idleness following the above investigation, we were informed that the dispute between the company and the miners at the Big Walnut Mine regarding the shot firers was compromised by the miners agreeing to undercut half the coal, and the company to employ and pay two men to do the shot firing at night after the miners had prepared their blasts and left the mine and the shot firers were not to fire any shot that was not properly prepared according to agreement.

The question of solid shooting is not only becoming a very serious one in many respects to both miners and operators, but one that greatly endangers both life and property. It is, however, a two-sided question, and the blame for all the ills resulting from it does not all lay at the door of the miners. Any miner of middle age can well remember the time when blasting coal off the solid was almost unknown, and even in some of the very hardest coal seams in the State miners took great pride in undercutting and side cutting their coal to the very best advantage, so as to use the least possible amount of blasting powder and secure the greatest percentage of lump coal, and any man who was careless about preparing the coal before blasting or shattering it to pieces with an overcharge of powder, was characterized as a "Coal Butcher," or "Company Coal Digger," all the coal going through a screen one and one quarter inch between the bars being called "Company Coal," the miners being paid on a lump coal basis, much of the fine coal at that time being hauled away from the mines and dumped in piles on the open ground, there being no market for it and as such was a drag and dead expense to many operators, but during the eighties the finer

grades of coal began to be more generally used for steam and other purposes and the demand for it at fair prices rapidly increased, thus stimulating a disposition on part of many mine operators to increase their percentage of fine coal, and we can recall many instances where the most questionable methods were resorted to by some to increase their profits in that line and preference was given to the unskilled and careless men who used the most blasting powder and produced the largest percent of fine coal by giving them the best places in the mine and other important privileges, while the real practical miner was somewhat driven to the wall and had to take what was left, thus placing a premium on the non-practical man and the operator profiting in three ways, viz.:—first, by the profits on the increased sale of powder; second, by the extra margin of profit on the fine coal; and third, where the coal was leased on a royalty basis of lump coal, by getting an extra proportion of fine coal without paying any royalty dues on it to the owner.

The introduction of lightning coal drilling machines and coal augurs and the reckless use of blasting powder in mining, encouraged by the greed and shortsightedness of some coal companies in their desire to reap temporary gain by producing a large proportion of fine coal without realizing the ultimate outcome, has played such a part that practical skill in coal mining is becoming a lost art, and pride in method and workmanship is displaced by slothful indifference and disregard for law and order or safety of others.

By a reasonably close observation of things connected with mines and mining, there is no one thing that we believe has been more detrimental than solid shooting to the true and lasting interests of the real practical miners, and although it may have been a temporary gain in some instances to some operators, it is now and will be to their injury and to the injury of the coal trade of Ohio as long as it is permitted to be practiced. The system has done more to increase the number of native miners than any other thing by drawing from nearly every trade and calling men who realized that ability to bore a hole in the coal with a crank augur, put in a big charge of powder, pay an initiation fee to the United Mine Workers Union, constituted all the credentials and qualifications necessary to make a full fledged miner, and indeed, very strange to say, we have too many instances where miners seek and use the force and influence of their Union to sustain their assertion of right to shoot the coal as they think proper, regardless of the wishes of the parties who own and operate the mine, and where the officials of the miners union, who realize fully all the evils and dangers resulting from such a practice, seem just a little timid about taking the firm stand they should on a question of such vital importance to the trade, and the safety or otherwise to life and limb of their members.

The forced introduction and rapid increase of mining machines in

the mines in this and other states even in many instances where natural disadvantages were against their installment, is doing much to eradicate the evil by the enhanced value of their product compared with that produced by the dangerous and unjustifiable methods of the so-called "Coal Butchers." As one of the most striking evidences of that fact the year 1904 closed with quite a number of valuable mines where solid shooting was in full force, absolutely and indefinitely closed down, the sole reason assigned by the owners being their utter inability to compete in the market with the properly mined coal of other companies.

All indications point to the fact that this will be one of the most burning questions of difference between the Ohio miners and mine operators at the expiration of the Inter-State Agreement, April 1, 1906, and any effort by both parties between now and then to harmonize matters will be well spent. There is no question but that the coal in a great many mines where it is now blasted off the solid should be properly undercut, both because of its nature and because of the great liability of sacrifice of life and property from the present system, and if it can be shown by a real practical test that miners cannot earn the regular and fair wages at present prices and prepare the coal properly, he is surely entitled to a better price for his labor, and the enhanced value of the product from that cause should enable the operator to pay more if necessary.

COLUMBUS, OHIO, August 19, 1904.

To the General and Sub-District Officials of the United Mine Workers of Ohio.

GENTLEMEN:— We have frequent complaints from miners that when District Inspectors go to mines the first thing they do is to hunt up the mine boss to go through the mine with them, while they never ask for a committee of miners. We have other complaints that coal companies always know when the Inspector is coming, and have "things fixed," etc.

In the first place, while there is no objection to a committee of miners, and also the mine boss or superintendent, accompanying an Inspector, you will agree with us that any man who is capable of performing the duties of Mine Inspector ought to be capable of going through a mine and finding what is right and what is wrong without the assistance of anyone. In a great many instances the Inspector has quite a distance to go and may reach the mine after the miners and mine boss have gone into the mine, and may have to lose a good deal of time in waiting for them or hunting them up, while, on the other hand, we know of cases where committee-men have been called and refused to go unless their pay was guaranteed, and other cases where men have asked the Inspectors to call on them so they would have that argument to secure a day's pay from their local union. In view of all of these things, and in view of the fact that there is no law, or even regular custom on that point, to govern an Inspector, the only thing he can do when he reaches a mine is to commence his work of inspection, and, if in proceeding he comes in contact with the local representatives of the mine or miners, they are at liberty and quite welcome to accompany him. It is sometimes quite an advantage to have a superintendent or mine boss with an Inspector, so that he is on the spot and his attention can be called

to any violation of the Mining Laws. The following quotation is from Section 305 of the Mining Laws:

"And the miners employed in any mine may, from time to time, appoint two of their number to act as a Committee to inspect, not oftener than once in every month, the mine and the machinery connected therewith, and to measure the ventilating current, and if the owner, agent or manager so desires, he may accompany said Committee by himself or two or more persons which he may appoint for that purpose; the owner, agent or manager, shall afford every necessary facility for making such inspection and measurement, but the Committee shall not in any way interrupt or impede the work going on in the mines at the time of such inspection and measurement, and said Committee shall, within ten days after such inspection and measurement, make a correct report thereof to the Inspector of Mines, on blanks to be furnished by said Inspector for that purpose; and if such Committee make to the Inspector a false or untrue report of the mines, such act shall constitute a violation of this Section."

We believe the mines ought to be looked after by the State Mining Department, and kept up to the standard of conditions required by law without miners having to contribute one cent to either send a committee with the Inspector around the mines or pay two of their number monthly to make an inspection, but this provision is made by law — this office provides blanks to carry it out — which can be supplied to local secretaries on application, and we believe that better results can be obtained both to miners and this Department by making the inspection as required by law, where necessary, than by sending committees with the Inspector.

On the question of Inspectors informing companies of their projected visits, it is sufficient to say that we consider the time past and gone when any fair-minded person would suspect such a thing being done with any wrong intention, but when an Inspector is in a mining locality they may anticipate a visit from him and make changes that arouse suspicion without any real cause for it.

If local secretaries or responsible miners will communicate to this office any irregularities of importance about the mines that comes under the jurisdiction of this Department, and be careful not to exaggerate them, signing their names to the communications, we will guarantee reasonable prompt attention and also guarantee that the names will not be known outside of this office. We find even amongst many intelligent, practical miners that there is not only a lack of the knowledge of the requirements of the Mining Laws, but unfortunately a dilatoriness in complying with them and a carelessness about their own safety and the safety of others, which is almost criminal to say nothing of the multitude of unskilled men who neither understand the laws or have a knowledge of the lurking dangers that await them.

The fatal and serious accidents in mines have for the past two years been alarmingly on the increase, and the conditions surrounding them indicate that a very large per cent of them is due to the most dreadful carelessness on the part of the victim. This Department has taken a very firm stand, and is insisting that managers of mines must take greater responsibility and, in the interest of life and limb, exact more stringent discipline from their employees in compliance with the law; but, with such an organization as at present amongst the miners, great help in that direction can be given by the officers and leading miners in assisting to educate your members and not only encouraging but helping to enforce proper discipline. The limit of individual liberty ought to always be reached when that liberty imposes injustices or endangers the safety of others.

This Department is determined to enforce the law as far as practicable and

possible and to the extent of its power both on operators and miners, but with your co-operation and that of the operators, which we earnestly solicit, we can do it much more pleasantly and effectively. Any assistance from you will be highly appreciated, and any suggestions duly considered.

Very respectfully yours,

GEO. HARRISON,
Chief Inspector of Mines.

DEPARTMENT OF MINES.

COLUMBUS, OHIO, September 7. 1904.

To the Secretaries of Coal Operators' Associations.

DEAR SIRs:— You are aware that there is a great deal of the time of our District Inspectors taken up with testing the accuracy of weigh scales, and, when disputes arise as to their accuracy and the Inspector cannot be reached, mines are frequently shut down and considerable time is lost without any cause for it.

If there is any art or skill necessary in testing weigh scales, the parties who are constantly working with them ought to be competent enough for that work. This Department desires that every mine operator procure two (2) fifty (50) pound, stamped test-weights, and allow them to be kept in the weigh-house so that the weigh-master and check-weighman can use them at any time, and that the Mine Inspector can, if necessary, also use them on his regular trips. This will be a very small cost to each operator, and will save much time and expense to the Inspector in shipping his test-weights from place to place and awaiting their arrival, while the miners and operators lose by the mines being idle.

This is a very reasonable and necessary request, and we hope that you will bring it to the notice of the operators of your district at your earliest convenience, and urge that they make this provision at once.

Very truly yours,

GEO. HARRISON,
Chief Inspector of Mines.

The following communication is a Ruling and Decision of the Mining Department which may be interpreted as being applicable to all similar circumstances and conditions in any and all parts of the State where they may exist.

STATE MINING DEPARTMENT.

COLUMBUS, OHIO, December 19, 1904.

T. J. MORGAN, ESQ., *Gen'l Mngr. Wellston & Milton Coal Companies, Wellston, Ohio.*

DEAR SIR:—The attention of District Mine Inspector, Thomas Waters, and myself has been called to the fact that a number of drill holes have been made by parties owning the surface and buildings thereon at Wellston through the surface and stratas into the old workings in the Number Two seam of coal in mining properties owned and operated by your companies, such holes being used for drainage from cellars and other buildings, and that the sewerage from the West Side Public School building, where there are several hundred school children in attendance, is being delivered into the mine through a hole drilled for that especial purpose.

After due consultation with the legal authorities of the State Department, and careful consideration of the Mining Laws and duties of this Department, we have to advise that while the owner of any mine has a perfect right to drill holes to the workings of his mine for the purpose of conveying steam, or water pipes, ropes, wires, etc., to facilitate the operation thereof, he has no right, neither can he sell, grant or convey, the right to anyone else to drill holes into the abandoned parts of any mine whether such mine is connected by openings to the excavations of other mines or not, for the purpose of making such mine a repository for drainage from house cellars or other dirty water from kitchens, or any filth from any lavatory, back yard buildings, public institutions, or public works of any kind, thus making the mine a sewerage cesspool for nearly every kind of filth and polluting the water and air and endangering the health and lives of the employes in the mine and in adjacent mines, by disseminating through the airways and working places the worst kind of germs, dregs, fumes and gases, that such a depository of filth is capable of producing when boxed in from the purifying influences of oxygen and a running stream of water.

In the drilling of holes for oil, gas, etc., through any coal vein, or a mine where coal has been excavated, it is not only necessary that such holes be cased with iron pipe but they shall also be sealed around such pipe between the floor and roof of any mine, and in case of abandonment, holes shall not be left open to any seam of coal, but shall be properly plugged both below and above the coal vein, and with the presence of a Mine Inspector to see that such plugging or sealing is done.

We hereby notify you that the use of such holes, wherever drilled for such purpose, must discontinue within ten days from the date of this order, and that such holes should be properly plugged and closed at once in the presence of a District Inspector, as required by law.

We understand that a number of holes have been drilled by private individuals, not only without your consent, but without your knowledge, and will be obliged if you can advise us as to the number of holes and the parties who are responsible for their drilling, so that this Department can also take up the matter directly with them. In the meantime, we ask that you will please notify those of whom you are aware have drilled and are using such holes for purposes indicated as to the order issued by this Department.

Very truly yours,

GEO. HARRISON, *Chief Inspector of Mines.*

N. B.—We are pleased to note that the above order was readily complied with.

G. H.

MINE FIRES.

A number of fires took place during the year, but the most serious one occurred at the Amsterdam mine, located in Jefferson County, Ohio, which is owned and operated by the Amsterdam Coal Company, Cleveland, Ohio. It is a shaft opening 287 feet deep and generates considerable fire damp; a number of small fires had taken place in this mine, which, without much loss of time, were successfully handled and extinguished, but the one referred to, which originated in the face of the seventh room in the second entry on the pair of first west entries on the north side of the mine, was of a more stubborn character, the entries being far enough in for eleven rooms on each entry, the room where the fire originated being driven forty or fifty feet from the entry. The fire was supposed to have been caused by a flame from a blast of powder, or by some one going into the room immediately after the firing of a shot and igniting a blower of gas. After several days' failure to make any headway in extinguishing the fire, the management called on the Department for assistance, and James P. Davis, District Mine Inspector in the Sixth Mining District, in whose district the mine is located, Thomas McGough, Inspector of the Fourth Mining District, and the writer arrived at Amsterdam, December 1, and at once proceeded into the mine. After examination it was found that the fire had spread to the entry, burning out the brattice in the fourth breakthrough in the pillar between the two entries, and also spread to the parallel entry, and that there was great danger of a serious explosion if it reached the gas generating and accumulating in the rise rooms in the first entry. There being no time to lose, brick and cement walls were at once built inside the neck of both entries, and water pumped over the walls for the purpose of flooding the two entries, which, fortunately, dipped from the neck of the entries to the face, being much lower at the face than at the main entry from where they started. The mine was idle about a week before the conditions were safe for the miners to return to their work.

The question of mine fires is becoming a very serious one and commands the careful consideration of operators and mine managers all over the State. Fires originate from various causes such as gas blowers being carelessly ignited, paper and other combustible matter being left burning after a shot has been fired; the disarrangement and contact of live electric wires, spontaneous combustion from bug dust, slack, bone coal and sulphurous substances heated by accumulation in the damp mines.

There is one very striking fact that mine fires generally take place

just after shooting time at night, or just after the miners have left the mine for the day, which strongly suggests the advisability that in all mines of importance there ought to be a responsible man go through all the working places as quickly as the powder smoke and circumstances and conditions will permit after shot firing has been done and the men have left the mine, so that any fire may be detected and not permitted to gain headway for several hours or until the following morning when it is almost beyond control, and where the destruction of property, dangers and cost of handling and extinguishing may prove to be something serious.

BRICK STOPPINGS.

As referred to in the introductory remarks of D. H. Williams, Inspector of the Second Mining District, to his annual report of mines located in his district, we desire to commend to the consideration of all mine managers the necessity, wisdom and economy of the use of brick or some other hard material laid in lime or cement as permanent stoppings between the intake and return airways in all main entries, and more especially so in all new mines.

The old method of closing breakthroughs with lumber and by building slate and bone coal walls and filling in with fine coal ought to be an out of date system, if for no other reason than the continual cost of keeping them in repair, to say nothing of the annoyance they cause in permitting leakages of air and a great source of danger by feeding, fanning and fostering the rapid spread of mine fires of every description, when the brick stoppings will produce the direct opposite result, and be both a powerful medium in preventing the spreading of fires and a great source of safety and protection in fighting them.

CONNECTING MINING PROPERTIES.

The question of connecting mining properties, which from the fact of so many adjacent mines being owned by the same company is becoming very frequent, and the many dangers incident to such a procedure, is worthy of deep thought both by miners and operators.

Until late years the most careful watchfulness was observed by mining engineers and those in charge of mines so that the excavations in the mines under their charge would never be fully driven to the limit or boundary line, and in a large majority of cases it was deemed necessary to leave from 20 to 50 and sometimes 100 feet of solid coal on each side of the territorial line between the mining properties. This was done to protect each property and the lives of miners employed in each of the mines from dangers resulting from mine fires, explosions of fire damp, inundations of water, creeps and squeezes taking place in the adjacent mine and to prevent the flowing of black damp, fire damp, noxious and

poisonous gases and the fumes arising from the decomposition of vegetable matter oozing through one mine to the other, and also to maintain a condition that would guarantee a separate and distinct current of air being circulated to the inner chambers and through the old abandoned workings of each mine without being impeded or interfered with by a net-work of openings to some other property, but there seems to be a disposition, which is growing in practice, to make underground connections between mining properties wherever possible, regardless of subjecting the one property and those employed in it to all the dangers to which the other is subject.

We fear that if there is not some check in this direction, and more care exercised about the connection of mining properties, that the time is not far distant when the subject will be presented to the people in such a serious aspect that a prohibitory law may be enacted.

ACCOUNT OF THE ANNUAL JOINT MEETING OF THE
COAL OPERATORS AND REPRESENTATIVES OF THE
MINERS' NATIONAL ORGANIZATION CONSTITUTING
THE INTER-STATE AGREEMENT AND COMPOSED OF
THE COMPETITIVE STATES OF OHIO, ILLINOIS, IN-
DIANA AND WESTERN PENNSYLVANIA.

Representatives of the operators and miners affected by the Inter-State Agreement composed of the States of Ohio, Indiana, Illinois and Western Pennsylvania met at its accustomed place, Indianapolis, Indiana, early in the month of January to adopt a Wage Scale for the year commencing April 1, 1904. The operators of Ohio and Western Pennsylvania insisted from start to finish on a reduction from the 1902 scale, while the miners held for the re-affirmation of the 1903 scale. These operators (Ohio and Western Pennsylvania) claimed that their position was such that they must insist upon a reduction or close down their mines, being confronted on every side by coal being produced at a lower price, and as this is one of the main factors entering into the forming of contracts which they had always held if they were to maintain their normal tonnage, it was necessary that they should have to meet these conditions face to face. West Virginia territory competes with Ohio Hocking Coal, though having to pay a higher rate of freight. This, however, is more than overcome by her ability to produce coal at a lower cost of production.

A Joint Wage Scale Committee was appointed to consider the claims and demands of both parties concerned. This Joint Committee failed in its purpose, a dead-lock being the outcome of its deliberations, and it adjourned to meet February 29, at Indianapolis, Indiana. At the conclusion of this meeting a compromise was effected on the basis of a general reduction of 5.55% in wages paid, the other provisions of the Inter-State Agreement to remain the same. This action was sanctioned by the miners' officials and representatives of the operators, and provided that the reduction be submitted to a direct vote of the miners' organizations in the States involved, the ultimatum being based on the unit rule to be adopted; if the vote showed a rejection of the ultimatum, it was probable that a strike would be inaugurated; if the ultimatum was accepted, all would go to work in the mines. It is roughly estimated that 200,000 miners were involved.

The conditions prevailing at the time, and the justness of the operators demands so appealed to the reason and judgment of the representatives of the miners' officials that they advised all local unions to vote for the proposed reduction and avoid a strike. The miners showed

their loyalty to their representative officials, and trusted in their ability to conduct the affairs of their national organization, so far as they were able, in a spirit which would always have as its incentive, "The best that can be obtained for the men who gain their livelihood in and about the mines," and voted to abide by the reduction agreed upon, which was to stand for two years.

CESSATIONS OF WORK THROUGHOUT THE YEAR, RESULTING FROM DISAGREEMENTS BETWEEN MINERS AND OPERATORS AS TO WAGES, PRICES AND CONDITIONS OF EMPLOYMENT.

The most serious and prolonged suspension of operations during the year occurred in what is generally known as the Crooksville, Zanesville and Coshocton Mining Districts.

While these districts are amongst the oldest mining regions in Ohio, and are intersected by valuable coal measures of nearly first quality, the development has been slow and limited, not only on account of their being surrounded by natural disadvantages, such as the thinness of the coal vein and extra dead work compared with some of the other districts adjacent to them, but also because of the lack of railroad facilities to enable them to reach and compete in the open markets with the coal produced from the thick veins in the Hocking Valley and the Guernsey County (Cambridge) district, much of which has been mined by mining machines for the past fifteen or twenty years.

The Coshocton field being provided with better railroad facilities with considerable less freight rate to pay, and better markets afforded it such as Canton, Akron, Cleveland, Columbus and other cities, also had the advantage over those attempting to operate mines in Muskingum County and the northeastern portion of Perry County; but while these conditions prevailed, the coal produced in the Zanesville, Roseville and Crooksville localities did not increase to any marked degree and usually found a fairly ready home consumption along the C. & M. V. R'y, and the nearby towns where it was comparatively free from competition with other coals.

Hand pick mining was the method in general use and little interest seems to have been taken in mining machines until the later nineties when the enterprising and aggressive O. F. McKenney of the Zanesville Coal Company, which was the principal mining company in the district, equipped one of their mines with an electric plant and mining machines, but the opposition and prejudice of the miners against them, and their refusal to operate them only on a system of day wages, convinced Mr. McKinney that he was just a step or two ahead of civilization on that question in that locality, and realized that the task of enforcing the installment of mining machines by an individual company at that time was going to be a troublesome and an expensive one; hence the iron coal diggers were returned to the manufacturer or stored away to await a more favorable opportunity to make their debut.

A full realization of the fact that the coal measures from which

the celebrated Jackson and Massillon coal was being produced were nearing exhaustion and the firm belief that as an Ohio product the thin vein number six was destined to take the place of those fine quality domestic fuels, together with the promising outlook in the coal trade, no doubt prompted such well known coal men as B. F. Berry, of Detroit, W. P. Rend, of Chicago, Geo. M. Jones, of Toledo, Burton, Beidler and Phillips, of Cleveland, Ohio, Jacob Opperman, Cambridge, Ohio, and others to bend their energies and seek the coveted black diamond hidden in the hills in the Crooksville District, and the first year of the twentieth century found quite a number of new openings, railroad switches and coal tipples being built and in every case fine electric plants being installed and every preparation being made for the operation of mining machines and a large production of coal. On March 31, 1902, the date of the expiration of the scale agreement covering the previous year, a great number of miners were just as bitterly opposed to mining machines as they ever had been, but it was evinced and conceded by all that the mining machines, like the Miner's Union, had come to the Crooksville District to stay, and no matter how distasteful they were to each other, the most graceful thing they could do was to arrange a scale of prices and conditions that would harmonize and soften the objectionable features of both. Hence, April, 1902, saw the first general mining machine scale prices the Crooksville and Zanesville Districts ever had.

The great anxiety and rush made by the migration of operators to this field to open and develop mines and secure abnormal prices on coal who had not yet taken the precaution to diagnose the situation or ascertain the disposition of the miners, caused a demand for labor far in excess of the miners available in the district, and being unable to secure them from other districts, the very same operators who actively participated in making the machine scale of 1902, so far forgot themselves as to ignore its conditions and voluntarily advance prices and offer premiums in competition for each others miners, so that when the time came to make a scale for 1903, the scale of 1902 was burlesqued by the miners' officials and very properly designated a "Paper Scale," and they insisted on the general advance of $12\frac{1}{2}\%$ on machine work and loading being paid on the then prevailing prices voluntarily made by the operators during the previous year and not based on the so-called "Paper Scale" of 1902.

The apparent abnormal condition of trade and demand for coal at high prices, the disorganization amongst the Crooksville operators, and their evident desire to avoid a strike so they could rapidly develop their new mines and participate in the high prices, were all potent factors of weakness that the miners were not slow to grasp and take advantage of, exacting the last possible cent and giving "No quarter to the enemy," and in consequence a scale was made for 1903, which in addition to the $12\frac{1}{2}\%$ general advance was fully 5 cents per ton on machine mined coal

higher than it would have been if the settlement had been based on the 1902 scale. A victory for the miners gained by taking advantage of the temporary surroundings, which might have terminated all right if the demand for coal stimulated by the Anthracite strike of 1902 had kept up and prices been maintained.

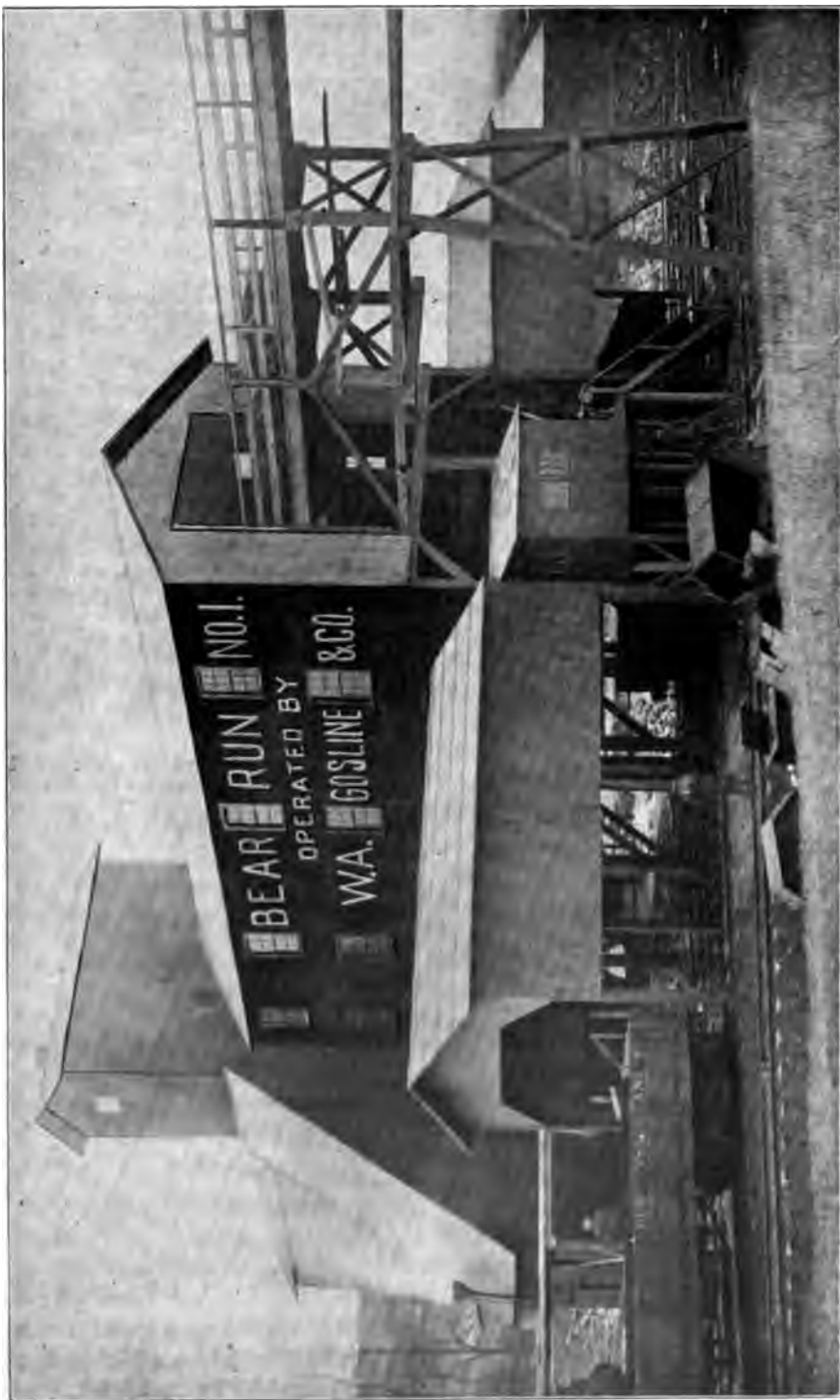
"But pleasures are like poppies spread,
You seize the flower, its bloom is shed;
Or, like the snow, falls in the river,
A moment white,—then melts forever."

So it was in this case, the miners enjoyed the pleasure of having the best prices paid in the State for that kind of work, but the demand for coal fell off, prices went down, and the operators were unable to operate their mines and compete in the open markets with cheaper mined coal. Thus the result was the enjoyment of a comparatively high mining price with but little work, and the operators hailed with delight the expiration of that agreement on March 31, 1904, and quietly closed their mines and did not make the least effort to open them. This, of course, only applied to machine mines. About April 6, a joint meeting of operators and miners was held which was adjourned and re-assembled from time to time without result and a strike was finally called by the miners about May 14, and continued until September 10, when a compromise scale was agreed on and the mines slowly resumed work, the operators still maintaining that the prices are too high to enable them to operate and secure their share of the trade. Thus ended the longest strike in the state during the year, but unlike the strikes of old, the very best of feeling prevailed between the operators and their employees, both simply looking at the matter from a business standpoint and quietly and good naturedly awaited results.

The Coshocton District made a compromise with the miners' representatives whereby work was resumed somewhat earlier in this district than in the others affected by this strike.

A strike occurred in Eastern Ohio on May 1, and lasted five weeks, and was caused by engineers being members of the United Mine Workers of America, and several minor affairs such as removing the bottom coal and sulphur mined over and left by the chain mining machines.

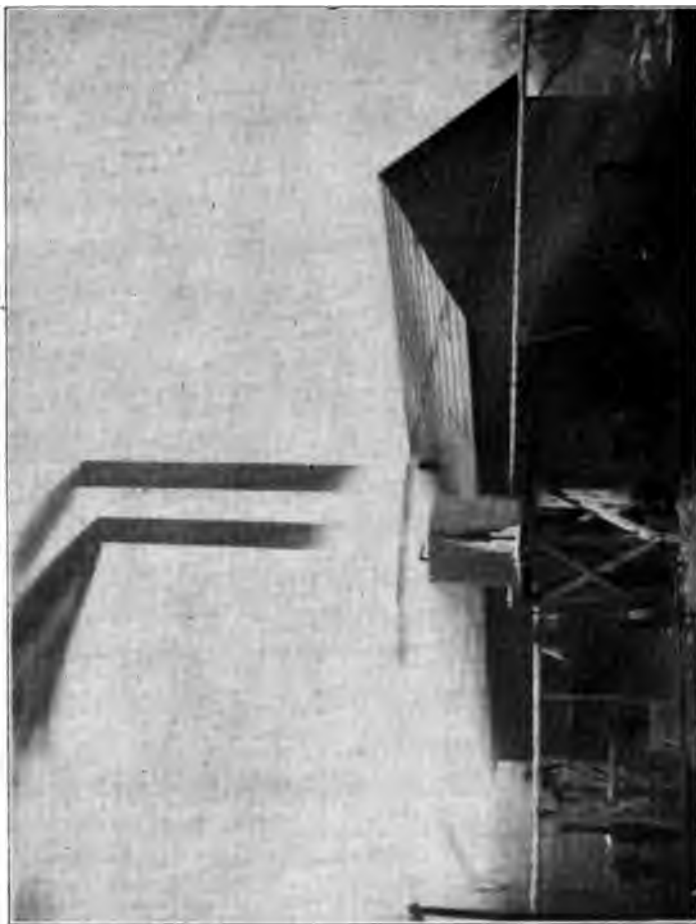
A strike occurred at the Wade and Morgan Run mines of Coshocton County in May and continued throughout the remainder of the year. The miners of these mines demanded that the coal should be weighed on Hopper Scales instead of railroad scales which were in use at these mines. The question was submitted to an Arbitration Committee which failed to decide upon an umpire within the time specified for by the arbitration.



"Hoisting Shaft and Tipline of W. A. Gosline & Co.'s Bear Run, No. 1 Mine, Perry County, Ohio."

"Blacksmith Shop and Fan House at W. A. Gosline & Co.'s Bear Run, No. 1 Mine, Perry County, Ohio."





"Steam and Electric Power-House at W. A. Gosline & Co.'s Bear Run Mine, No. 1,"
Perry County, Ohio."



"Dwelling House at W. A. Gosline & Co.'s Bear Run, No. 1 Mine, Perry County, Ohio."



Boarding House at W. A. Gosline & Co.'s Bear Run, No. 1 Mine, Perry County, Ohio."

"BEAR RUN NO. 1 MINE."

Referring to the recent rapid development of the coal industry in the Crooksville District, and the modern equipment for producing and handling same, we publish the illustrations which precede this sketch as scenes at the Bear Run No. 1 Mine, owned and operated by the well known firm of W. A. Gosline & Co., Toledo, Ohio.

DESCRIPTION.

This property is located on the C. & M. V. branch of the Pennsylvania Railroad System about three miles east of New Lexington, Perry County, Ohio. The territory consists of about 1,700 acres all drilled, and said to be underlaid with from 3 feet 6 inches to 4 feet of the No. 6 seam of coal, which is reached on the northeast part of the territory by a shaft opening sixty-four feet deep, and a forty-six foot tibble is erected making a hoist of one hundred and ten feet.

The mine is developed by three parallel entries for ventilation and main haulways, and cross entries are driven on the butts on the double entry system; each pair will be ventilated by separate air currents which will not connect with any other entry, but will return through overcasts to the upcast, avoiding the inconvenience of doors on the main haulways.

A 16 x 4½, twelve (12) blade Brazil, Indiana, Crawford & McCrimmon fan, constructed on the reversible plan is erected at the mouth of a slope, the length of which is 216 feet from surface to coal driven on a one-third grade seven feet high and nine feet wide through solid rock and slate, which is calculated to be lighted with electric lights and used both as a return airway and as a traveling way for men and mules. A portion of the hoisting shaft is also partitioned off and contains a winding stairway for ingress and egress.

The power to operate is furnished by two large Jeffrey Steam Boilers and a pair of 150 H. P. McEwen engines; a 150 K. W. Jeffrey Generator and an Otis Hoisting Engine, the coal being cut with Jeffrey 16-A Chain Mining Machines.

A sixty-eight foot, 80 ton railroad weigh scales have been installed and everything about the place is fitted up with the intention of a large production of coal and other openings are anticipated at the south end of the territory.

This is only one of a number of similar mining equipments in this important mining district during the last two years.

COAL PRODUCTION.

COAL TRADE IN THE UNITED STATES FOR 1904.

GATHERED FROM EXTRACTS AND STATISTICS PUBLISHED IN JOURNALS
ON THE COAL INDUSTRY.

In no other industry in which the United States abounds has there been the phenomenal expansion in so short a time as that of the coal trade.

In 1898 the United States produced 219,974,667 tons of coal and ranked in output second only to Great Britain, which at that time was the greatest coal producing country in the world.

In the year 1899 the United States produced 253,739,992 tons of coal and was given first place in the list of all the nations of the world in the production of coal, and has since that time maintained supremacy and occupied that proud position, until at the close of 1904 it is estimated that the total coal production of this country has reached the unprecedented figures of 350,385,065 tons.

While Germany has made wonderful progress in her industrial activities, she does not produce as much coal as the State of Pennsylvania.

With a production of practically one million tons per day, which is almost equal to the entire coal production per day of all the other nations of the earth, and the advantage of wonderful and apparently unlimited resources in the deposits of valuable coal measures, standing out in the hills and mountains of the country, boldly courting development by the enterprising business man, and with a hope for the continued commercial prosperity, there is no reason to doubt that America may lead for many centuries, all other nations in the production, consumption and exportation of that commodity which has played such an important part in the progress of modern civilization and the development of the valuable resources of nations.

The bituminous production of coal in the United States for the year 1904 amounted to 277,836,769 tons, or 7,000,000 tons less than in 1903. This shortage is accounted for by a strike which occurred between the pilots and masters and the Carriers' Association on the Great Lakes during the year which caused the mines of Ohio, West Virginia and Pennsylvania to run short time during the months of April, May and June. Colorado also experienced a strike, as well as Alabama, Tennessee and Kentucky, where there was a cessation of work owing to inability to agree on the wage scale.

The Anthracite tonnage for 1904 is given at 72,548,300 tons, showing a decrease of 1,765,000 tons as compared with the previous year.

The entire tonnage of the United States fell 2.5%, while the value of same, which was \$14,164,800, dropped 8%, which was accounted for

by a year of comparative inactivity in the industrial machinery of the country being re-adjusted, when the price of coal would naturally suffer more than the output.

The cause for the decrease in the tonnage of the United States was due to a less number of industrial projects being launched, and being a presidential election year, business is usually naturally quiet, and capitalists timid about placing their money in circulation until the national policy of the country is finally and firmly established. On the other hand the wonderful output of 1903 gained its impetus from the Anthracite strike in 1902, when the coal supply of the entire country was depleted and the industry unable to satisfy the demands made upon it for coal.

Attention is called to the table on page 42, giving the number of employees, total coal production and the production per employee for the year 1904 in all of the leading coal producing states in the United States. It will be seen that with the exception of Kentucky, where the coal production amounted to 7,108,594 tons, and Missouri, where the tonnage was 4,115,695 tons, that Ohio, the production of which in 1904 amounted to 24,583,815 tons, has the lowest production per employee than any other State, the production per man in Ohio for the year being only 536, while the greatest production in any State per employee is 719 and is reported from the State of West Virginia, which is 173 tons per man more than was produced in Ohio for the year's work.

Taking the four comparative States, Illinois, Indiana, Ohio and Western Pennsylvania, which compose the Inter-State Agreement we find that Illinois with 676 tons, 140 tons per man per year more than was produced in Ohio; Western Pennsylvania, 641 tons, or 105 tons per man more than Ohio; and Indiana 553 tons, or 17 tons per man more than Ohio.

These results can, no doubt, be attributed to a number of causes, or explained in various ways, but one of two things is certain, that either the Ohio coal is higher in cost of production or the miners of Ohio have less work and earn less money in the aggregate than those of other States, a subject which ought to be of vital importance as such to those interested and employed in the mines and connected with the industry in this State, if they calculate to maintain their standing and rank with that of other States.

TABLE SHOWING THE TOTAL NUMBER OF TONS OF COAL MINED DURING THE YEAR 1904 IN THE VARIOUS STATES OF THE UNITED STATES, THE NUMBER OF EMPLOYEES, AVERAGE TONS MINED BY EACH, AND THE RELATIVE POSITION EACH HOLDS AS A PRODUCER OF BITUMINOUS COAL.

States.	Total No. Employees.	Total No. Tons Mined.	Tons Mined To Each Employee.
Pennsylvania	155,467	99,761,548	641.6
Illinois	54,774	37,077,897	676.9
West Virginia	41,981	*30,222,881	719
Ohio	45,834	24,583,815	536.3
Alabama	17,850	11,273,151	631.5
Indiana	17,838	9,872,404	553.4
Kentucky	13,679	7,108,594	519.6
Colorado	10,769	6,776,551	629.2
Maryland	5,996	4,277,196	713.4
Missouri	9,875	4,115,695	416.7
Washington	4,633	2,905,689	627.1
Utah	2,215	1,563,274	705.7
Total	380,911	239,538,695	

* Reported as 26,984,715 long tons, of 2,240 pounds each, which have been reduced to tons of 2,000 pounds, as in other states.

NOTE.—The above table is only intended to show the relative position Ohio holds as a producer of bituminous coal, as compared with other states. Only the leading states are represented in the above; 239,538,695 tons do not represent all of the coal output for last year. Reports from some of the smaller states were not available.

COAL TRADE IN OHIO FOR THE YEAR 1904.

The record of the coal industry of Ohio for the year 1904, will not go down in history as being the most brilliant, although the output did not fall below that of the preceding year, but the condition of the trade as an entirety for the year was not the most encouraging, especially during the first six months. However, during the last half of the year the trade seemed to emerge from the lethargy into which it had fallen, and assumed some of its old time activity, and the close of the year found the coal markets in very fair condition, and business was good.

The lake trade, upon which the mines of Ohio depend largely for the disposal of their early summer output, was very materially affected by the strike in May upon the refusal of the masters and pilots employed on the lakes to accept the wage scale of the Lake Carriers' Association, which was not broken until about the middle of June when many pilots and masters applied for their old positions.

After a period of six months a shortage in the car supply was reported, and the production curtailed on inability to secure means for transportation.

The stimulus given the bituminous coal trade by the Anthracite strike in 1902, resulted in and is still resulting in continued heavy investment and development of new coal properties. The amount of bituminous coal that could be produced if all mines were operated to their full capacity would be far in excess of the normal consumption. Tremendous gains have been made in the opening of new territory all over the coal producing country. Again the capacity for output of coal in mines of to-day is far in excess of mines that were opened up ten or fifteen years ago. At that time a mine which had a capacity of handling 1,000 tons per day was considered above the average mine opened up at that time, while at the present time it is not uncommon to see a mine able to handle from 1,500 to 2,000 tons a day, which has been made possible by the immense strides that have been made in the manner of producing and handling coal with new and improved devices of coal cutting and coal hauling machinery and up-to-date facilities for building and equipping mine tipples and delivering the coal to the cars ready for transportation.

Railroads, however, place a restriction on the production of coal, being unable to care for the maximum tonnage that could be produced. Quoting from one of the Trade Journals it says: "This state of affairs naturally causes a retrenchment in the policy of transportation companies in not increasing their equipment by not adding new switches or terminals, thereby placing them in a position of not being able to cope with increased business. From the fact that equipments were permitted to deteriorate

by closing railroad shops and allowing cars and locomotives to be in service as long as possible, the natural assumption was that the railroads in 1904 were not up to the standard of the previous year. When you add to this an increased tonnage of coal, which constitutes 60% of the railroad traffic, it was plain to be seen that there would be a shortage in the supply of cars and slowness in moving the coal tonnage."

In the latter part of the fall and early winter a long continued drouth created a still further shortage, the supply of water being wholly inadequate to meet the demand for which it is utilized. The supply that was accessible was so impregnated with chemicals as to have a serious effect on locomotives. This drouth continued for three months and at the close of 1904 the car shortage was still in evidence. However the trade at the close of the year was in marked contrast with that of the earlier part of the year, causes for which have already been given, and the outlook for 1905 is more encouraging than at the beginning of 1904. The iron and steel industries are again becoming active and other important industries will undoubtedly establish other records of production necessitating a greater consumption of the coal product.

On account of the fair and friendly disposition of the miners' officials to avoid such conflicts, the possibility of mine strikes has been greatly reduced.

COAL TONNAGE IN OHIO.

An increase of but 10,549 tons is to be noted in the coal production of the State of Ohio during the year 1904, the total amounting to 24,583,815 tons reported from twenty-nine counties, Monroe failing to make any returns for the year. As compared with the marked gain in 1903 a loss of 633,430 tons is to be found.

Of the total amount of coal mined 17,386,450 represents the lump tonnage, in which a loss of 249,189 is found as compared with the year 1903; the nut coal produced amounted to 2,674,724 tons, or a loss of 7,276 compared with the preceding year. A marked increase is notable in the return of pea and slack coal amounting to a gain of 267,014 tons, the total amount being 4,522,641 tons.

It might be of interest to trace the increases and decreases that have been made in the lump and nut coal mined as far back as the year 1902. The increase in lump coal for that year was 2,866,249 tons; in the year 1903, it was but 93,053, while in 1904 a decrease of 249,189 is shown.

The increase in nut coal in 1902 was 437,001 tons; in 1903, it was 26,398, while in 1904 the small decrease of 7,276 is to be found.

The greatest gains, however, are to be found in the immense increases made in the output of fine coal or what is classified in this report as pea and slack. In the year 1902, there was a gain of 304,727 in the amount of fine coal produced; in 1903 it shows the vast gain of 524,548, and in 1904 an increase of 267,014 will be noted.

These immense gains in the amount of fine coal mined is to be accounted for largely from the universal system of blasting coal off the solid, where the coal is not undercut by mining machines, which produces large quantities of fine coal.

TABLE SHOWING COAL PRODUCTION OF STATE BY COUNTIES
DURING THE YEAR 1904.

Counties.	Tonnage for 1904.			Total.	Rank in Production.
	Lump.	Nut.	Pea and Slack.		
Athens	2,870,942	408,890	574,246	3,854,078	1
Belmont	2,171,754	434,647	676,788	3,283,189	2
Carroll	240,164	30,561	83,869	354,594	11
Columbiana	465,072	105,213	150,859	721,144	10
Coshocton	207,877	49,555	69,035	326,467	12
Gallia	15,203	1,303	2,473	18,979	26
Guernsey	2,119,885	319,961	644,374	3,084,220	3
Harrison	255,283	18,611	33,312	307,206	13
Holmes	21,667	4,956	4,227	30,850	25
Hocking	1,461,951	165,805	267,113	1,894,869	7
Jackson	1,409,925	231,690	316,923	1,958,538	6
Jefferson	1,723,872	187,550	583,953	2,495,375	4
Lawrence	141,849	27,791	24,552	194,192	17
Mahoning	49,173	14,580	22,742	86,495	22
Medina	75,183	10,865	17,862	103,910	20
Meigs	149,248	20,456	42,691	212,395	16
Morgan	60,673	7,358	15,669	83,700	24
Muskingum	194,961	49,301	56,048	300,310	14
Noble	105,848	26,912	22,210	154,970	18
Perry	1,857,038	233,592	401,052	2,491,682	5
Portage	71,567	9,010	17,115	97,692	21
Scioto	9,010	1,505	1,709	12,224	27
Stark	544,040	83,138	133,995	761,173	9
Summit	63,743	7,750	12,715	84,208	23
Trumbull	6,048	204	383	6,635	28
Tuscarawas	822,784	185,962	283,130	1,296,876	8
Vinton	183,580	22,639	34,305	240,524	15
Washington	2,400	800	600	3,800	29
Wayne	85,710	14,119	23,691	123,520	19
Total	17,386,450	2,674,724	4,522,641	24,583,815	.....

Lump coal 17,386,450

Nut coal 2,674,724

Pea and slack coal..... 4,522,641

Total tons all grades..... 24,583,815

NOTE.—A large part of this coal was loaded as "run of mine," "steam lump," etc., and has been separated on the percentage basis, which exists in each county and coal seam. A table of these percentages is shown on page 47.

TABLE SHOWING THE NUMBER OF COAL SEAMS WORKED IN EACH COUNTY; ALSO THE COMBINED AVERAGE PERCENTAGE OF LUMP AND FINE COAL FOR ALL MINES REPORTED FROM THE DIFFERENT COUNTIES.

Counties.	Coal Seams.								Pick Mining.			Machine Mining.		
	1	2	3	4	5	6	7	8	Lump.	Nut.	Pea and Slack.	Lump	Nut.	Pea and Slack.
Athens						"	"	"	67	13	20	72	13	15
Belmont						"	"	"	64	17	19	66	16	18
Carroll					"	"	"	"	65	15	20	68	14	18
Columbiana			"		"	"	"	"	60	18	22	66	16	18
Coshocton					"	"	"	"	60	17	23	66	16	18
Gallia					"	"	"	"	65	14	21	...	...	...
Guernsey					"	"	"	"	64	13	23	69	11	20
Harrison					"	"	"	"	60	17	23	66	16	18
Hocking					"	"	"	"	67	13	20	72	13	15
Holmes					"	"	"	"	70	12	18	...	...	...
Jackson	"	"		"	"	"	"	"	65	14	21	70	12	18
Jefferson				"	"	6-a	"	"	66	14	20	68	14	18
Lawrence					"				70	14	16	...	...	...
Mahoning			3-a						60	15	25	...	...	...
Medina	"							"	68	12	20	...	...	...
Meigs									67	11	22	...	...	...
Morgan									67	13	20	...	...	...
Muskingum					"	"	"	"	64	17	19	75	10	15
Noble					"	"	"	"	70	10	20	69	11	20
Perry					"	"	"	"	67	13	20	72	13	15
Scioto	"				"	"	"	"	70	14	16	...	...	...
Stark	"		"			"	"	"	60	12	28	66	16	18
Summit					"	"	"	"	75	10	15	...	...	...
Tuscarawas					"	"	"	"	64	12	24	66	16	18
Trumbull				"	"	"	"	"	70	10	20	...	...	...
Vinton					"	"	"	"	68	12	20	70	12	18
Wayne	"								65	14	21	...	...	...

NOTE.—General average for pick mines: Lump, 66 per cent; fine, 34 per cent. General average for machine mines: Lump, 69 per cent; fine, 31 per cent. The percentages given here were gathered from the best sources obtainable upon this subject.

COMPARISON OF COAL PRODUCTION OF OHIO BY
COUNTIES.

Athens County still maintains first position in the amount of coal produced, having a total tonnage of 3,854,078 tons, although this amount is a loss of 51,826 as compared with the year 1903. Belmont comes second with a production of 3,283,189, a gain of 671,164 tons. Guernsey comes third with a tonnage of 3,084,220 tons, a gain of 368,274 tons. Jefferson ranks fourth in point of production making a return of 2,495,375 tons, a gain of 174,956 tons; Perry County stands fifth, mining 2,491,632, a loss of 239,913 tons, which was probably due to a strike in that county lasting several months, curtailing its production. Jackson County maintains sixth place with a tonnage of 1,958,538 tons, showing a loss of 453,578 tons.

Athens County has ranked first in production of all the counties for the past four years; Belmont second, displacing both Perry and Guernsey. In 1903 Belmont held but fourth place in point of production. Guernsey still maintains third place; Jefferson displaced Perry and Jackson counties and stands fourth in production; Perry dropped from second to fifth place and Jackson County, which in 1903 was in fifth place dropped to sixth.

Athens County mined over three and one-half million tons of coal, and Belmont and Guernsey over three million; Jefferson and Perry nearly two and one-half million; Hocking and Jackson almost two million and Tuscarawas over one million.

The combined output of these eight counties amounted to 20,358,827 tons or 82 $\frac{4}{5}$ % of the entire production of the State.

Eleven counties show gains in output amounting to 1,559,847 tons, the most notable occurring in Belmont, Guernsey, Jefferson, Noble, Vinton, Harrison, Summit, Carroll, Wayne, Scioto and Morgan in rotation.

Losses appear in nineteen counties amounting to 1,549,298 tons and appear in the following counties: Jackson, Perry, Meigs, Stark, Columbiana, Coshocton, Hocking, Lawrence, Medina, Tuscarawas, Muskingum, Gallia, Portage, Mahoning, Holmes, Trumbull, Washington and Monroe.

Hocking, Athens and Perry counties (The Hocking Valley District), produced 8,240,629 tons of coal or 33 $\frac{1}{2}$ % of the entire output of the State.

TABLE SHOWING THE COAL TONNAGE OF THE STATE FOR 1904 AS COMPARED WITH THE YEAR 1903.

Counties.	1903.	1904.	Gain.	Loss.
Athens	3,305,904	3,854,078		51,826
Belmont	2,612,025	3,283,189	671,164	
Carroll	326,095	354,594	28,499	
Columbiana	874,602	721,144		153,458
Coshocton	422,221	326,467		95,754
Gallia	23,889	18,979		4,910
Guernsey	2,715,946	3,084,220	368,274	
Harrison	249,106	307,206	58,100	
Holmes	32,099	30,850		1,249
Hocking	1,967,636	1,894,869		72,767
Jackson	2,412,116	1,958,538		453,578
Jefferson	2,320,419	2,495,375	174,956	
Lawrence	249,139	194,192		54,947
Mahoning	89,218	86,495		2,723
Medina	136,803	103,910		32,893
Meigs	388,568	212,395		176,173
Morgan	82,315	83,700	1,385	
Monroe	164			164
Muskingum	305,933	300,310		5,623
Noble	52,247	154,970	102,723	
Perry	2,731,595	2,491,682		239,913
Portage	101,889	97,692		4,197
Scioto	8,515	12,224	3,709	
Stark	926,180	761,173		165,007
Summit	44,329	84,208	39,879	
Trumbull	8,476	6,635		1,841
Tuscarawas	1,328,951	1,296,876		32,075
Vinton	154,934	240,524	85,590	
Washington	4,000	3,800		200
Wayne	97,952	123,520	25,568	
Total	24,573,266	24,583,815	1,559,847	1,549,298

NOTE:—

Total tonnage for twenty-nine counties in 1904 was..... 24,583,815 tons
 Total tonnage for thirty counties in 1903 was..... 24,573,266 "

Showing a net gain for year 1904..... 10,549 "

Total increase in eleven counties was..... 1,559,847 tons
 Total decrease in nineteen counties was..... 1,549,298 "

Showing net increase of..... 10,549 "

PICK MINING.

To such an extent has mining machinery superseded the hand pick as a method of producing coal that but 8,037,360 tons, or 32.7% of the State's entire production was returned as "Pick Mined" coal during the year, and the introduction of mining machinery is yearly on the increase until the time will not be far distant when the hand pick will virtually disappear as an implement of coal production. Not only was the tonnage by machinery the largest in the history of the Department, but the greatest amount of machinery has been installed, and new counties are being annually added to the list as having introduced machinery in their mines.

Almost two million tons less coal was mined by the use of the pick in 1904 than in 1903.

Belmont County produced more pick mined coal than any other, mining 1,353,182 tons; Tuscarawas follows with 1,196,715; Jackson, 1,184,315; Stark, 624,136; Jefferson, 581,253, and Perry, 479,373 tons.

In producing the amount of pick mined coal returned, a total of 17,723 persons were engaged, of which 13,346 were pick miners.

The average time of the pick miners is given as 159 days.

Jackson County leads in the number of pick miners, employing 1,789; Belmont, 1,755; Tuscarawas, 1,732; Stark, 1,364, and Jefferson, 1,064.

Pick mined coal was reported from 28 counties.

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED BY PICK, THE NUMBER OF MINERS AND DAY MEN EMPLOYED, AND THE AVERAGE NUMBER OF DAYS THE MINERS WORKED AND POWDER USED.

Counties.	No. of Pick Miners.	Average No. of Days Miners Worked.	No. of Day Hands Inside.	No. of Day Hands Outside.	No. of Kegs of Powder Reported.	Lump Coal.	Nut Coal.	Pea and Slack Coal.	Total.
Athens	131	164	15.5	13.5	1,830	78,241	15,709	14,953	108,903
Belmont	1,755	184	261.5	167.5	6,432	894,815	193,742	264,625	1,353,182
Carroll	115	151	25.5	22.5	1,814	38,468	8,011	12,647	59,126
Columbiana	720	142	124	98	9,954	243,162	58,846	78,974	380,982
Coshocton	363	173	90	56	3,975	147,496	38,261	53,202	238,959
Gallia	72	143	15.5	11.5	841	15,203	1,303	2,473	18,979
Guernsey	197	131	23.5	22.5	910	66,303	15,250	23,744	105,297
Harrison	479	137	51.5	49.5	1,414	235,800	16,606	26,150	278,556
Hocking	56	179	6	4	270	41,991	5,575	7,585	55,151
Holmes	62	184	15.5	12.5	566	21,667	4,956	4,227	30,850
Jackson	1,789	161	546.5	216.5	47,820	808,322	156,805	219,188	1,184,315
Jefferson	1,064	155	107.5	90.5	2,979	393,698	53,232	134,323	581,253
Lawrence	319	153	57	34	3,818	115,204	20,940	19,984	156,128
Mahoning	153	180	30	28	1,242	49,173	14,560	22,742	86,495
Medina	204	161	38	31	2,762	75,183	10,865	17,862	103,910
Meigs	519	96	125.5	99.5	3,167	129,475	17,873	37,857	185,205
Muskingum	475	160	73.5	70.5	6,198	185,280	48,979	53,144	287,403
Noble	44	123	12	12	76	12,546	1,646	2,760	16,952
Perry	717	137	93.5	72.5	9,308	347,403	51,940	80,030	479,373
Portage	197	145	93	47	3,426	71,567	9,010	17,115	97,692
Scioto	24	140	8.5	6.5	461	9,010	1,505	1,709	12,224
Stark	1,864	144	266.5	241.5	22,604	441,388	69,902	112,846	624,136
Summit	199	131	43.5	42.5	3,490	63,743	7,750	12,715	84,208

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED BY PICK, THE NUMBER OF MINERS AND DAY MEN EMPLOYED, AND THE AVERAGE NUMBER OF DAYS THE MINERS WORKED AND POWDER USED — Concluded.

Counties.	No. of Pick Miners.	Average No. of Days Miners Worked.	No. of Day Hands Inside.	No. of Day Hands Outside.	No. of Kegs of Powder Reported.	Lump Coal.	Nut Coal.	Pea and Slack Coal.	Total.
Trumbull	24	113	4.5	3.5	232	6,048	204	383	6,635
Tuscarawas	1,732	173	379.5	243	25,197	754,532	177,315	204,808	1,196,715
Vinton	343	158	54.5	41	4,992	135,516	16,443	25,452	177,411
Washington	8	220	3	2	100	2,400	800	600	3,800
Wayne	221	127	39	34	3,902	85,710	14,119	23,691	123,520
Total	13,346	.....	2604	1,773	169,780	5,469,344	1,032,167	1,535,849	8,037,360

NOTE.—Total number of men employed in the pick mines for the year 1904 was 17,723, viz.:

Pick miners	13,346
Day hands, inside	2,604
Day hands, outside	1,773

Total

17,723

Average number of days each pick miner worked was 159 days (i. e., 2,129,658 days by 13,346 miners).

NOTE.—The actual number of days in the year that were worked, by the number of miners in each mine, is the basis for the above average number of days worked, by each miner, in all of the mines.

PRODUCTION AND AVERAGE EARNINGS OF PICK MINERS
FOR THE YEAR 1904.

The following table covering pick mining in the State shows a production of coal per miner per year of 409.8 tons for an average of 159 days actual work, or 2.6 tons per man per day. At the prevailing mining prices which, for a portion of the year, was the highest basic mining prices paid in the State for over twenty-five years would not be more than \$2.30 per day per man or about \$365.00 per man for the calendar year 1904, one dollar per day for every day in the year. Take into consideration that this is the gross earnings from which must be deducted all necessary expense such as cost of mining tools, oil, powder, and all expenses incident to the work of a miner, no person excepting those who have had actual experience can conceive how it is possible after paying for house rent, fuel, doctor bills, and all other necessary and constant expense for a man, wife and probably a typical Roosevelt family to receive the common necessities of life in the way of food, clothing and education under such conditions, but when we scan the figures in the right hand column we find that in some counties the average production per man per day runs up as high as 4.2 tons per day, and reducing it in others as low as 1.3 tons per man per day, which would make the gross annual earnings of the latter a little over \$180.00. While this represents only a small number of men and is the lowest average of any county in the State, it is surely an enigma how anyone can pay all the expenses enumerated above and exist on such a meager sum, yet it would be unfair to give this low sum as the earnings of any great number of miners, but take the largest pick mining counties in the State, Belmont for instance, with 1,755 miners and 184 days at 2.8 tons per man per day would only give about \$450.00 gross earnings for the year, and Jackson County with 1,789 men at the same production per man for 161 days would aggregate less than \$400.00; Tuscarawas with 1,732 miners at 2½ tons per man for 173 days' work gives still a less total of about \$375.00 per man for the year. As mining machine prices, day wages scale, and all other prices about mines are supposed to be based on pick mining prices though more than two-thirds of the coal production is by mining machines, it is fair to presume that this table is a fair representation of the earnings of the miners generally; it must not be forgotten, however, that the results only represent the tonnage production of screened pick mined lump coal at the basic price of 90 cents per ton from January 1, to April 1, and 85 cents per ton for the balance of the year and does not include the extra cost of entry yardage, price for room turning, breakthroughs, pay for ripping roof or floor to make mule height, clay

veins or consideration for deficient work of any kind paid directly to this class of men and which varies considerably in the different districts, and if figured in would in some instances be a very material increase in the gross earnings. Another consideration is that the actual average number of days worked by the miners was 159 days or a little over half time, but this number is reached by adding half days, one-fourth days, and all broken time worked making an aggregate of 159 eight hour days only when the real facts are that the miners have no doubt been at the mines a great many more times and are unable to tie up to any other kind of work, because like the force of a fire department in a city, they may be called on at any time, consequently few of them are able to engage in any other kind of work.

These figures are not compiled, nor are these comparisons made, for the purpose of assisting to fortify either operators or miners with arguments against each other, but to simply call attention to the fact that the mining industry in Ohio is losing ground. If all is right in Ohio, there is something wrong in other States; and, if all is right in other States, there is something radically wrong in Ohio. Ohio is surely not the only mining State which is overrun with a surplus of miners!

TABLE SHOWING THE TONS OF LUMP COAL MINED IN 1904, THE NUMBER OF PICK MINERS, AVERAGE DAYS WORKED, THE NUMBER OF TONS MINED BY ALL MINERS FOR THE YEAR 1904, AND FOR EACH MAN PER DAY, PER MAN.

Counties.	No. Pick Miners Employed.	Average Days Pick Miners Worked.	Tons of Lump Coal Produced by Pick Miners.	Average Tons Mined by Each Miner for the Year 1904.	Average Tons Mined by Each Miner Per Day Per Man.
Athens	131	164	78,241	597	3.6
Belmont	1,755	184	894,815	509	2.8
Carroll	115	151	38,468	334	2.2
Columbiana	720	142	243,162	337	2.3
Coshocton	363	173	147,496	406	2.3
Gallia	72	143	15,203	211	1.5
Guernsey	197	131	66,303	336	2.5
Harrison	479	137	235,800	492	3.5
Hocking	56	179	41,991	749	4.2
Holmes	62	184	21,667	351	2
Jackson	1,789	161	808,322	451	2.8
Jefferson	1,064	155	393,698	370	2.3
Lawrence	319	153	115,204	361	2.3
Mahoning	153	180	49,173	321	1.8
Medina	204	161	75,183	368	2.3
Meigs	519	96	129,475	249	2.6
Morgan	*	*	*	*	*
Muskingum	475	160	185,280	285	2.3
Noble	44	123	12,546	287	2.3
Perry	717	137	347,403	484	3.5
Portage	197	145	71,567	363	2.5
Scioto	24	140	9,010	375	2.6
Stark	1,364	144	441,388	324	2.2
Summit	199	131	63,743	320	2.4
Trumbull	24	113	6,048	252	2.2
Tuscarawas	1,732	173	754,532	436	2.5
Vinton	343	158	135,516	395	2.5
Washington	8	220	2,400	300	1.3
Wayne	221	127	85,710	388	3
Total	13,346	.....	5,469,344	.....	.....

* No pick coal reported.

NOTE.—Average number days pick miners worked, 159 days. Average tons coal produced for pick miners per day, per man, 2.6 tons.

MACHINE MINED COAL.

Of the total production of coal produced in the State during 1904, 67.3% was mined by the use of machinery, clearly demonstrating to what extent electricity has affected the production of the world's greatest commodity.

The tonnage represented as produced by the use of machinery was 16,546,455 tons, almost two million more than was mined by the same method in 1903.

The lump production in machine mined coal amounted to 11,917,106; nut, 1,642,557, and the pea and slack, 2,986,792 tons.

Nineteen counties returned outputs of machine mined coal, Meigs and Muskingum having been added to the list.

Athens County leads in the amount of machine mined coal, producing 3,745,175 tons; Guernsey, second, 2,978,923; Perry, third, 2,012,309; Belmont, fourth, 1,930,007; Jefferson, fifth, 1,914,122, and Hocking, sixth, 1,839,718 tons.

The factors in producing 16,546,455 tons of machine mined coal during the year represent a total of 28,211 persons engaged in mining and preparing the coal for the markets, as follows: Total number drillers, shooters and loaders, 17,432; number of machine runners, 2,297; number of day hands inside, 5,346, and number of day hands outside, 3,036.

In the number of drillers, shooters and loaders, Athens County leads with a total of 4,083; Perry, 2,720; Jefferson, 2,380; Guernsey, 2,244; Belmont, 1,871, and Hocking 1,608.

The average time worked by the loaders in the nineteen coal producing counties was 169 days. Average of runners, 171 days.

In the number of machine runners, Athens ranks first, employing 410; Jefferson, 333; Perry, 329; Belmont, 311; Guernsey, 264; Jackson, 158, and Hocking 149.

The number of kegs of powder used in mining coal by counties reporting was 94,934.

Another all important factor in producing this amount of machine mined coal was the use of .075 mining machines and 186 coal hauling motors.

Counties.	No. of Drillers, Shooters and Load- ers.	Average No. of Days Loaders Worked.	No. of Machine Runners.	Average No. of Days Runners Worked.	No. Day Hands Inside.	No. Day Hands Outside.	No. Kegs of Powder Reported.	Lump Coal.	Nut Coal.	Pea and Slack Coal.	Total.
Athens	4,083	166	410	158	1,301	781	22,738	2,792,701	303,181	559,293	3,745,175
Belmont	1,871	168	311	173	416	280	5,565	1,276,939	240,905	412,163	1,930,007
Carroll	340	169	66	170	122	48	2,356	201,696	22,550	71,222	295,468
Columbia	421	168	53	242	788	56	1,674	221,910	46,367	71,885	340,162
Coshocton	174	136	30	136	70	48	395	60,381	11,294	15,833	87,508
Guernsey	2,244	207	264	201	953	283	20,218	2,053,582	304,711	620,630	2,978,923
Harrison	40	176	6	176	2	4	160	19,483	2,005	7,162	28,650
Hocking	1,608	191	149	194	411	247	9,608	1,419,960	160,230	259,528	1,839,718
Jackson	743	191	158	178	513	230	1,277	601,603	74,885	97,735	774,223
Jefferson	2,380	156	333	170	517	506	7,034	1,330,174	134,318	449,630	1,914,122
Lawrence	50	220	10	220	20	7	542	26,645	6,851	4,568	38,064
Meigs	81	131	10	101	21	11	331	19,773	2,583	4,834	27,190
Muskingum	20	80	6	100	6	5	80	9,681	322	2,904	12,907
Morgan	97	116	23	161	31	25	415	60,673	7,358	15,669	83,700
Noble	105	230	28	168	48	12	1,016	93,302	25,266	19,450	138,018
Perry	2,720	137	329	134	679	420	11,897	1,509,635	181,652	321,022	2,012,309
Stark	181	125	57	112	47	26	2,289	102,652	13,236	21,149	137,037
Tuscarawas	158	142	36	76	49	27	757	68,252	8,647	23,262	100,161
Vinton	116	153	18	133	22	19	632	48,064	6,196	8,853	63,113
Total	17,432	.....	2,297	.....	5,346	3,036	94,934	11,917,106	1,642,557	2,986,792	16,546,455

NOTE.—Total number of men employed in the machine mines for the year 1904 was 28,111, viz.: Drillers, shooters and loaders, 17,432; day hands inside, 5,346; day hands outside, 3,036; machine runners, 2,297; total, 28,111.

Average number of days each loader worked was 169 (i. e., 2,945,533 days by 17,432 drillers, shooters and loaders). Average number of days each machine runner worked was 171 (i. e., 393,206 days by 2,297 runners).

The actual number of days in the year that were worked by the number of drillers, shooters, loaders and runners in each mine was the basis for the above average number of days worked by each man in all of the mines.

TABLE SHOWING THE TONS OF LUMP COAL MINED IN 1904, THE NUMBER OF DRILLERS, SHOOTERS AND LOADERS, AVERAGE DAYS WORKED, THE NUMBER OF TONS MINED BY ALL DRILLERS, SHOOTERS AND LOADERS FOR THE YEAR 1904, AND FOR EACH MAN PER DAY PER MAN.

Counties.	No. Drillers, Shooters and Loaders Employed.	Average Days Drillers, Shooters and Loaders Worked.	Tons Lump Coal Drillers, Shooters, and Loaders Produced.	Average Tons Mined by Each Driller, Shooter and Loader for the year 1904.	Average Tons Mined by Each Driller, Shooter and Loader Per Day Per Man.
Athens	4,083	166	2,792,701	684	4
Belmont	1,871	168	1,276,939	682	4
Carroll	340	169	201,696	593	3.5
Columbiana	421	168	221,910	527	3.1
Coshocton	174	136	60,381	347	2.4
Gallia	*	*	*	*	*
Guernsey	2,244	207	2,053,582	915	4.4
Harrison	40	176	19,483	487	2.7
Hocking	1,608	191	1,419,960	883	4.6
Holmes	*	*	*	*	*
Jackson	743	191	601,603	809	4.2
Jefferson	2,380	156	1,330,174	558	3.6
Lawrence	50	220	26,645	533	2.4
Mahoning	*	*	*	*	*
Medina	*	*	*	*	*
Meigs	81	131	19,773	244	1.8
Morgan	97	116	60,673	625	5.4
Muskingum	20	80	9,681	888	3.8
Noble	105	230	93,302	888	3.8
Perry	2,720	137	1,509,635	559	4
Portage	*	*	*	*	*
Scioto	*	*	*	*	*
Stark	181	125	102,652	567	4.5
Summit	*	*	*	*	*
Trumbull	*	*	*	*	*
Tuscarawas	158	142	68,252	432	3
Vinton	116	153	48,064	414	2.7
Washington	*	*	*	*	*
Wayne	*	*	*	*	*
Total	17,432	.....	11,917,106	.....	.....

* No machine coal reported.

NOTE.—Average number days drillers, shooters and loaders worked was 169. Average tons coal produced in the nineteen counties for each man per day, per man, was 4 tons.

TABLE SHOWING ANNUAL PRODUCTION OF MACHINE MINED COAL.
SINCE THE INTRODUCTION OF ELECTRICITY INTO THE MINES.
OF THE STATE.

Years.	Output.	Gain.	Loss.
1889	900,000		
1890	1,148,499	248,499	
1891	1,654,081	505,632	
1892	2,239,080	584,999	
1893	2,553,074	313,994	
1894	2,555,466	2,392	
1895	3,120,456	564,990	
1896	3,368,349	247,893	
1897	4,106,124	737,775	
1898	5,252,598	1,146,474	
1899	6,741,060	1,488,462	
1900	9,457,777	2,716,717	
1901	10,489,814	1,032,037	
1902	13,439,648	2,949,834	
1903	14,560,931	1,121,283	
1904	16,546,455	1,985,524	

TABLE SHOWING THE COAL OUTPUT OF THE STATE FROM 1872 TO 1904 INCLUSIVE.

Years.	Output.	Gain.	Loss.
1872	5,313,294		
1873	4,550,028		76,526
1874	3,267,585		128,224
1875	4,864,259	1,596,674	
1876	3,500,000		1,364,259
1877	5,250,000	1,750,000	
1878	5,500,000	250,000	
1879	6,000,000	500,000	
1880	7,000,000	1,000,000	
1881	8,225,000	1,225,000	
1882	9,450,000	1,225,000	
1883	8,229,429		1,220,571
1884	7,650,062		579,367
1885	7,816,179	166,117	
1886	8,435,211	619,032	
1887	10,301,708	1,866,479	
1888	10,910,946	613,338	
1889	10,907,385		3,561
1890	11,788,859	881,474	
1891	13,050,187	1,261,328	
1892	14,599,908	1,549,721	
1893	14,828,097	228,189	
1894	11,910,219		2,917,878
1895	13,683,879	1,773,660	
1896	12,912,608		771,271
1897	12,448,822		463,786
1898	14,058,155	1,609,333	
1899	15,908,934	1,850,799	
1900	19,426,649	3,517,715	
1901	20,321,290	894,641	
1902	23,929,267	3,607,977	
1903	24,573,266	643,979	
1904	24,583,815	10,549	

TABLE SHOWING THE COMPANIES WHO REPORTED AS HANDLING POWDER, AND THE NUMBER NOT REPORTING, IN THE MACHINE MINES AND PICK MINES IN THE COUNTIES OF THE STATE FOR THE YEAR 1904.

Counties.	Companies Who Reported Powder.	Companies Who Did Not Report Powder.	Number of Kegs Reported by Machine Mines.	Number of Kegs Reported by Pick Mines.	Total No. of Kegs of Powder Reported.
Athens	27	6	22,738	1,830	24,568
Belmont	37	16	5,565	6,432	11,997
Carroll	16	7	2,356	1,814	4,170
Columbiana	26	12	1,674	9,954	11,628
Coshocton	10	7	395	3,975	4,370
Gallia	5			841	841
Guernsey	19	7	20,218	910	21,128
Harrison	12	20	160	1,414	1,574
Hocking	7	3	9,608	270	9,878
Holmes	7	4		566	566
Jackson	49	6	7,277	47,820	55,097
Jefferson	22	19	7,034	2,979	10,013
Lawrence	14	6	542	3,818	4,360
Mahoning	7	15		1,242	1,242
Medina	8			2,762	2,762
Meigs	22	7	331	3,167	3,498
Morgan	2		415		415
Muskingum	29	39	80	6,198	6,278
Noble	20	13	1,016	76	1,092
Perry	42	19	11,897	9,308	21,205
Portage	4			3,426	3,426
Scioto	4	1		461	461
Stark	35	15	2,239	22,604	24,843
Summit	10			3,490	3,490
Trumbull	4	1		232	232
Tuscarawas	42	12	757	25,197	25,954
Vinton	16		632	4,992	5,624
Washington	1			100	100
Wayne	6	2		3,902	3,902
Total	503	237	94,934	169,780	264,714

NOTE.—This table does not show all the powder used in the production of coal; many miners buy powder independent of the companies, and it is not reported. It will show, however, the counties where the most powder is used, and the contrast between pick and machine mines.

MEN EMPLOYED.

MINERS AND DAY HANDS.

The total number of persons employed in the mining industry, for the year of 1904 has kept pace with that of former years, 45,834 persons being engaged. In 1903, there were 41,396, so that there were 4,438 more in 1904 than in 1903.

This increase is slightly in excess of the increase of the two preceding years, as, for example, the increase in 1902 over 1901 was 3,916; that of 1903 over 1902 was 3,975; while 1904 shows an increase over 1903 of 4,438.

The 45,834 persons reported for 1904 were classified as follows: miners, 30,778; day men, 12,759; machine runners, 2,297.

The classification of the 41,396 persons reported for 1903 was: miners, 29,834; day men and machine runners, 11,562.

By referring to the table on pages 65 and 66, the reader may see in what counties the largest number of men are employed, which will be noted as coming in the following order: Athens, 6,736; Belmont, 5,062; Perry, 5,031; Jefferson, 5,028; Jackson, 4,196; Guernsey, 3,987; Hocking, 2,481, and Tuscarawas, 2,624.

TABLE SHOWING THE NUMBER OF PERSONS ENGAGED IN THE PRODUCTION OF COAL IN THE SEVERAL COUNTIES DURING THE YEAR 1901, AS COMPARED WITH 1903, AND THE GAINS AND LOSSES IN EACH COUNTY.

Counties.	No. Miners Employed During 1903.	No. Miners Employed During 1904.	Gain.	Loss.	No. Day Hands Employed 1903.			No. Day Hands Employed 1904.			Total.		Machine Runners, 1903.	Machine Runners, 1904.	Total No. Persons Engaged in Production of Coal, All Classes.
					Inside.	Outside.	Total.	Inside.	Outside.	Total.	Gain.	Loss.			
Athens	4,294	4,214	520	80	952	599	1,551	1,316.5	795.5	2,112	561	412	410	6,736	
Belmont	3,106	3,626	520		588	341	929	677.5	447.5	1,125	196	219	311	5,062	
Carroll	428	455	27		123	29	152	147.5	70.5	218	66	55	66	739	
Columbiana	1,029	1,141	112		249	160	409	212	154	366	21	38	53	1,560	
Coshocton	687	537		150	150	93	243	160	104	264	21	29	30	831	
Gallia	54	72	18		8	8	16	15.5	11.5	27	11			99	
Guernsey	2,340	2,441	101		826	270	1,096	976.5	305.5	1,282	186	235	264	3,987	
Harrison	487	519	32		68	80	148	53.5	53.5	107		41	6	632	
Holmes	89	62		27	14	15	29	15.5	12.5	28		1		90	
Hocking	1,810	1,664		146	373	242	615	417	251	668	53	171	149	2,481	
Jackson	2,707	2,532		175	1,083	414	1,497	1,059.5	446.5	1,506	9	114	158	4,196	
Jefferson	2,437	3,441	1,007		588	556	1,144	654.5	596.5	1,251	107	228	333	5,028	
Lawrence	369	369			69	36	105	77	41	118	13	8	10	497	
Mahoning	162	153		9	28	25	53	30	28	58	5			211	
Medina	480	204		276	33	29	62	38.5	31	69	7			273	
Meigs	531	600	69		114	101	215	146.5	110.5	257	42		10	867	
Morgan	140	97		43	31	18	49	31	25	56	7	24	23	176	
Monroe	6			6	1		1					1			
Muskingum	549	495		54	57	50	107	79.5	75.5	155	48		6	656	
Noble	96	149	53		34	13	47	60	24	84	37	6	28	261	
Perry	3,502	3,437		65	785	526	1,311	772.5	492.5	1,265		907	929	5,081	
Portage	205	197		8	58	40	98	93	47	140	42	46		937	
Scioto	20	24	4		10	7	17	8.5	6.5	15		2		39	

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TABLE SHOWING THE NUMBER OF PERSONS ENGAGED IN THE PRODUCTION OF COAL, ETC. — Concluded.

Counties.	No. Miners Employed During 1903.	No. Miners Employed During 1904.	No. Day Hands Employed 1903.			No. Day Hands Employed 1904.			Total.		Machine Runners, 1903.	Machine Runners, 1904.	Total No. Persons En- gaged in Production of Coal, All Classes.	
			Loss.	Inside.	Outside.	Total.	Inside.	Outside.	Total.	Gain.				Loss.
Stark	1,820	1,545	275	471	309	780	313.5	267.5	581	.....	199	30	57	2,183
Summit	96	199	.....	22	20	42	43.5	42.5	86	44	.....	.....	.....	285
Trumbull	25	24	1	6	5	11	4.5	3.5	8	.....	3	.....	.....	32
Tuscarawas	1,806	1,800	.....	416	252	668	428.5	270.	698.5	30.5	.....	63	36	2,624.5
Vinton	332	459	.....	59	41	100	76.5	60.	136.5	36.5	.....	10	18	613.5
Washington	10	8	.....	3	2	5	3.	2.	5	.....	.....	.....	.....	13
Wayne	217	221	.....	34	28	62	39.	24.	73	11	.....	.....	.....	294
Total	29,834	30,778	1,317	7,253	4,309	11,562	7,950	4,809	12,759	1,533	336	1,949	2,297	45,834

NOTE.—The word "miners" as used in this table for year 1904 means pick miners, drillers, shooters and loaders. The words "day-hands" for 1904 mean all other employees except machine runners.

TONS OF COAL CUT AND HANDLED DURING 1904.

It may be of some interest to those engaged in the coal industry to know something about the amount of coal one man will cut with a modern mining machine, or the average amount of coal that is handled to each "day man" employed.

The Mining Department has compiled some figures upon these subjects and from them it will be seen that 975 mining machines were used to cut 16,546,455 tons of coal, which would be an average of 16,970.7 tons to each machine for the "work year," (171 days), or 99 tons to each machine per day. Two thousand two hundred and ninety-seven (2,297) men were engaged in operating the machines, which is an average of 7,203.5 tons per man for the year. They worked an average of 171 days, which would be 42.1 tons to each man per day. The table upon page 68 will show the details of this important part of the mining industry.

Another table along the same lines has been prepared and is shown on page 69. This table is intended to show how many tons of coal are handled or produced to each day man employed (i. e. all day men of every class working in and about the mines).

There were 12,759 day men reported to the Department during the year 1904, and 24,583,815 tons produced or handled. This would make an average to each day man for the "work year," (i. e. 164 days, which is the mean average between pick and machine mines,) of 1,926.7 tons, which would be 11.74 tons to each day man per day per man, or very close to 12 tons.

Local conditions, of course, cause a wide variation in the amount of coal cut or handled in the various counties, which may be seen by a careful comparison of the two tables which treat of those subjects in detail, a man being able to cut or handle more coal in a thick than in a thin vein.

The statement given above in which 2,297 men operate 975 mining machines might be considered as misleading when it is generally known that it requires but two men for one machine. It must be remembered, however, that machines are sometimes worked at night, or "double shifts," and in this way the number of men would be increased to more than two to each machine.

TABLE SHOWING THE NUMBER OF MINING MACHINES IN USE IN 1904, THE MEN OPERATING THEM, AVERAGE DAYS WORKED AND THE TOTAL TONS CUT BY ALL MACHINES FOR THE YEAR 1904 AND FOR EACH MACHINE AND MAN PER DAY PER MAN.

Counties.	No. Mining Machines in Use in Year of 1904.	No. of Men Running Machines.	Average No. of Days Runners and Machines Worked.	Total No. of Tons of Coal Cut by Machine.	Average Tons Cut by Each Machine Runner for the Year 1904.	Average Tons Cut by Each Runner Per Day Per Man.	Average Tons Cut by Each Machine for the Year 1904.	Average Tons Cut by Each Machine Per Day Per Machine.
Athens	143	410	158	3,745,175	9,134	58	26,190	166
Belmont	143	311	173	1,930,007	6,206	36	13,497	78
Carroll	33	66	170	295,468	4,477	26	8,954	53
Columbiana	32	53	242	340,162	6,418	22	10,630	44
Coshocton	10	30	136	87,508	2,917	21	8,751	64
Guernsey	96	264	201	2,978,923	11,284	56	31,030	154
Harrison	4	6	176	28,650	4,775	27	7,162	41
Hocking	54	149	194	1,839,718	12,347	63	34,069	175
Jackson	82	158	178	774,223	4,900	27	9,442	53
Jefferson	152	333	170	1,914,122	5,748	34	12,592	74
Lawrence	6	10	220	38,064	3,806	17	6,344	29
Meigs	5	10	101	27,190	2,719	27	5,438	54
Muskingum	3	6	100	12,907	2,151	22	4,302	43
Morgan	9	23	161	83,700	3,639	23	9,300	57
Noble	11	28	168	138,018	4,929	29	12,547	75
Perry	135	329	134	2,012,309	6,116	53	14,906	111
Stark	29	57	112	137,037	2,404	21	4,725	42
Tuscarawas	19	36	76	100,161	2,782	37	5,272	69
Vinton	9	18	133	63,113	3,506	26	7,013	53
Total	975	2,297	.....	16,546,455	.....	.....	.....	.....

NOTE.—Average tons cut for the nineteen counties for each runner, per day per man, was 42.

Average tons cut for the nineteen counties for each machine per day was 99.

Average number of days machines and runners worked, 171.

TABLE SHOWING THE TOTAL DAY MEN EMPLOYED, AVERAGE DAYS WORKED, TONS OF COAL PRODUCED OR HANDLED BY EACH DAY MAN FOR YEAR 1904 AND FOR EACH DAY MAN, PER DAY PER MAN.

Counties.	Total Day Men Employed, All Classes and for All Mines.	Average Days Day Men Worked.	Total Tons All Grades Handled or Produced.	Average Tons Handled or Produced by Each Day Man for the Year 1904.	Average Tons Handled or Produced by Each Day Man Per Day Per Man.
Athens	2,112	165	3,854,078	1,825	11
Belmont	1,125	176	3,283,189	2,918	16
Carroll	218	160	354,594	1,626	10
Columbiana	366	155	721,144	1,978	13
Coshocton	264	154	326,467	1,236	8
Gallia	27	143	18,979	703	5
Guernsey	1,282	169	3,084,220	2,405	14
Harrison	107	156	307,206	2,871	18
Hocking	668	185	1,894,869	2,836	15
Holmes	28	184	30,850	1,102	6
Jackson	1,506	176	1,958,538	1,300	7
Jefferson	1,251	155	2,495,375	1,994	13
Lawrence	118	186	194,192	1,645	9
Mahoning	58	180	86,495	1,498	8
Medina	69	161	103,910	1,506	9
Meigs	257	113	212,395	826	7
Morgan	56	116	83,700	1,494	13
Muskingum	155	120	300,310	1,937	16
Noble	84	176	154,970	1,845	10
Perry	1,265	137	2,491,682	1,970	14
Portage	140	145	97,692	698	5
Scioto	15	140	12,224	815	6
Stark	581	134	761,173	1,310	10
Summit	86	131	84,208	979	7
Trumbull	8	113	6,635	829	7
Tuscarawas	698.5	157	1,296,876	1,858	12
Vinton	136.5	155	240,524	1,768	11
Washington	5	220	3,800	760	4
Wayne	73	127	123,520	1,692	13
Total	12,759	.....	24,583,815	.....	.....

NOTE.—Average tons of coal, all grades, handled by each day man per day per man was 12 tons (i. e., 12,759 men handled 24,583,815 tons in 164 days).

Average days the day men worked was 164, which is the *mean* average between pick and machine mines.

MINING MACHINERY WITH
ILLUSTRATIONS.

MINES IN WHICH MINING MACHINES HAVE BEEN INSTALLED, AND THE NUMBER AND KIND OF EACH.

Interest and activity in electric mining machines introduced in the mines of the State remains unabated, 201 being added to the list already in use since their first appearance in the mines as a mode of producing coal. This is but one more than was reported as being introduced in the mines during the year 1903.

Scarcely a new mine is opened up where mining machines can be installed with any degree of success without their introduction is noted, in fact mining machines and motors constitute an all important factor in producing coal economically and in such quantities as to reduce the cost of production so as to enable those engaged in the industry to meet competition from other States.

By adding to the list of mining machines already reported in use the 201 which were reported in 1904, the total list reaches 975. The number of haulage motors also increased forty-four (44), in all 186 being in use.

Of the 975 mining machines in operation, 450 are of the Jeffrey type, 290 Morgan-Gardner, 128 Goodman, and 20 of various other types of electric mining machines.

Those of the compressed air type 6 are of the Jeffrey make, 10 Whitcomb, 44 Harrison, and 27 Ingersoll-Sargeant.

Of the 186 motors in use 72 are Jeffrey, 64 Morgan-Gardner, 41 Goodman, and 5 locomotives of various types and makes. These motors are in use in sixteen counties.

In the number of mining machines Jefferson County leads, having in use 152, 145 of which are electric; Athens and Belmont each have 143; Perry, 135; Guernsey, 96; Jackson, 82; Hocking, 54; Carroll, 33; Columbiana, 32; Stark, 29, and Tuscarawas 19.

Belmont County ranks first in the number of motors in use, reporting 42; Athens, 32; Jefferson, 31; Perry, 27, and Guernsey, 19.

In Athens County mines 209, 210, 31, all new mines installed mining machinery; also the Eclipse No. 3, No. 29, Twin Vein and Doanville No. 2.

In Belmont County, Cochran No. 1 and 2 (new), Neff's No. 2 and Moores Run; Lydia, Summit No. 1 and No. 2 (new); J. J. Koehnline, Wheeling Creek No. 1, Crescent No. 4 and 6 (new) and Lansing No. 2 (new).

In Carroll County — Big Vein No. 6.

Columbiana — New Shaft, Siope No. 2, Card & Prosser No. 4, Prospect Hill No. 2 and Peerless.

Guernsey County — Nora (new) or Midway and Union No. 1.

Hocking County — Powells Run No. 1, Beatty Bros. and Carbon Hill.

Jackson County — Grace, Fluhart No. 2, Victor Royal, Michigan and Ohio (new), Limestone, Wellston Fuel Co., Southern Ohio, Domestic, Jerry Morrow (new), and McGhee.

Jefferson County — Amsterdam and Florence (new).

Meigs — Charter Oak and Pittsburgh.

Muskingum County — Muskingum Coal & Ry Co's Mine (new).

Noble County — Belle Valley.

Perry County — Number 302, No. 53, Valley No. 5, Hamilton & Wallace, Pine Run No. 44, Indian Run, Jobs, and Crescent No. 2 and No. 3 (new).

Stark County — Whittacre Fire Proofing Co. No. 3, and South Massillon.

Tuscarawas County — Wainwright No. 6; Somerdale No. 2; Goshen Shaft; Novelty and Beaver Dam.

Vinton County — Rock; Alma (new), and Trace (new).

The following mines which reported the use of mining machines in 1903 either failed to report any machine mined coal or abandoned their use for reasons unknown to this Department, while others do not appear on the list on account of their having been abandoned or are nearing exhaustion, when the use of machinery is not practical or economical. Morgan Run mine, Coshocton County, reported no machine mined coal; also Tippecanoe mine, Harrison County, Star and Commercial, Jackson County. The Machine Coal Company's mine which appeared on the list of mines using mining machinery in 1903 was abandoned. Silver Rune Mine, Meigs County, reported only pick mined coal for the year; the same is true of No. 13 mine, Stark County; Minglewood mine, Stark County, is nearing exhaustion and their use discontinued. In Tuscarawas County, Egypt No. 1 mine and Houk reported no machine mined coal, and the East Goshen No. 2 mine, which in 1903 reported the use of a motor, reported none for 1904.



Jeffrey 17A Electric Chain Coal Cutter.



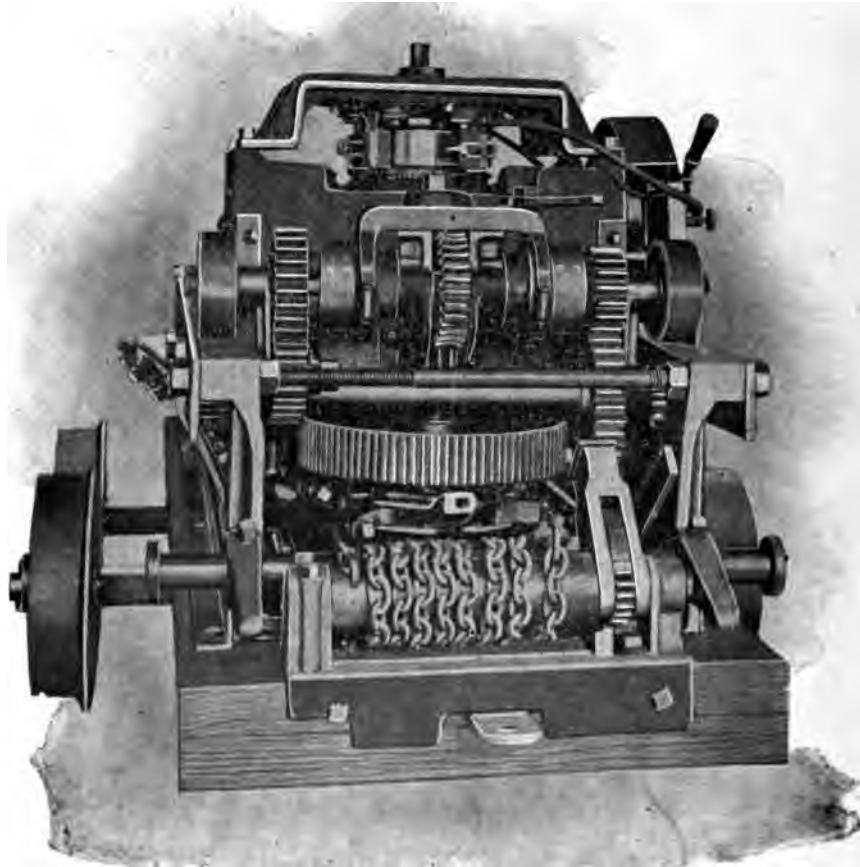
161D Compressed Air Coal Cutter, partially extended under the coal.



Jeffrey D. M. 20. 4 Ton Electric Gathering Locomotive with reeling device. Jeffrey 10 Ton Electric Locomotive.



Jeffrey 10 Ton Electric Locomotive.



Heavy "D" Machine mounted on Truck. Rear view, showing principal parts.

Undercut five, six and seven feet. Height of machine 32 inches. Manufactured by the Morgan-Gardner Electric Co., 27th St. and Shield Ave., Chicago, Illinois.



INGERSOLL-SERGEANT "RADIAL" COAL CUTTER.

A new shearing, undercutting and entry-driving machine, operated by compressed air at 60 to 80 lbs. pressure. Can be used as a rock drill in sinking and tunneling. Makes a cut 8 feet deep, 12 feet wide and 4 1/2 inches high from a single setting. Made in the sizes tabulated, with specifications as listed in our Catalogue.



INGERSOLL-SERGEANT "RADIAL" COAL CUTTER.

A new shearing, undercutting and entry-driving machine, operated by compressed air at 60 to 80 lbs. pressure. Can be used as a rock drill in sinking and tunneling. Makes a cut 8 feet deep, 12 feet wide and $4\frac{1}{2}$ inches high from a single setting. Made in the sizes tabulated, with specifications as listed in our Catalogue.



INGERSOLL-SERGEANT "RADIAL" COAL CUTTER.

A new shearing, undercutting and entry-driving machine, operated by compressed air at 60 to 80 lbs. pressure. Can be used as a rock drill in sinking and tunneling. Makes a cut 8 feet deep, 12 feet wide and 4½ inches high from a single setting. Made in the sizes tabulated, with specifications as listed in our Catalogue.



INGERSOLL-SERGEANT "NEW INGERSOLL" COAL CUTTER.

An undercutting machine of puncher or pick type, operated by compressed air at 35 to 60 lbs. pressure. Undercuts 4 to 6 feet deep, 4 to 5 feet wide from one position. Made in the sizes tabulated, with specifications as listed in our Catalogue.



74 Ton Electric Locomotive with Cable Reel.
Built by the General Electric Co., Schenectady, N. Y. Employed for gathering
the cars from the faces of the room.



THE HAMILTON LOADING MACHINE.

Built to Load Coal in Mines, after Undercutting Machines.

Work in veins as low as 4 feet and requires no more room at the face than Breast Chain Cutting Machines.

A gathering plate at the end of a radial arm or sweep, creeps under the coal as it lies on the mine floor, mechanically gathering all coal lying within a radius of 12 to 16 feet from the end of the track, handling large lumps as well and delivering to a second conveyor (of the apron type) which serves as a picking table where the coal can be cleaned of slate and bone as it moves slowly to the car.

The machine has a capacity of 20 cubic feet per minute (1,000 lbs. coal), is equipped with car pulling device and handles the loaded cars to and from the cross entry.

It is self-propelling, moving from room to room with its own power, the front end on pony truck allowing the machine to take short curves.

The mechanical construction of the machine is the very best; journals and bearings are brass lushed, head shaft has ball bearings, and parts subject to wear can be easily renewed.

We can furnish this machine equipped for compressed air or electric power.

TABLE SHOWING THE NUMBER AND MAKE OF MINING MACHINES
IN USE IN NINETEEN OF THE COAL PRODUCING COUNTIES,
AND POWER BY WHICH THEY ARE OPERATED.

Counties.	Electric.						Total Electric.	Compressed Air.				
	Jeffrey.	Morgan-Gardner.	Independent Link-Belt.	General Electric.	Harrison.	Ingersoll-Sergeant.	Goodman.	Jeffrey.	Harrison.	Ingersoll-Sergeant.	Whitcomb.	Total Compressed Air.
Athens	34	78	1				25	138	5			5
Belmont	61	14			7		20	102	24	7	10	41
Carroll	18	14					1	33				
Columbiana ..	9	9				4	3	25	4	3		7
Coshocton	10							10				
Guernsey	27	51		7			11	96				
Harrison		4						4				
Hocking	34	19						53	1			1
Jackson	67	12					3	82				
Jefferson	73	19					53	145	6	1		7
Lawrence	6							6				
Meigs	1	4						5				
Morgan	6	3						9				
Muskingum		3						3				
Noble	2	6					3	11				
Perry	85	41	1				3	130	5			5
Stark	7						6	13		16		16
Tuscarawas ..	8	6						14	5			5
Vinton	2	7						9				
Total ...	450	290	2	7	7	4	128	888	6	44	27	87

NOTE.—Total machines of all kinds in use in 1904. 975.

TABLE SHOWING THE NUMBER AND MAKE OF HAULAGE MOTORS
IN USE IN SIXTEEN OF THE COAL PRODUCING COUNTIES IN
THE STATE IN 1904.

Counties.	Jeffrey.	Morgan-Gardner.	Independent Link-Belt.	Goodman.	General Electric.	Baldwin Locomotive.	N. R. Porter.	Westinghouse.	Baldwin - Westinghouse.	Total.
Athens	4	14		12	1					32
Belmont	15	18		1		1		1		42
Carroll				3						3
Columbiana		3	1	1						5
Coshocton	3									3
Guernsey	8	3		8						19
Harrison									1	1
Hocking	3		1	3						7
Jackson	3	2								5
Jefferson	15	9		5	1			1		31
Morgan	1									1
Meigs		1								1
Noble		2								2
Perry	16	9		2						27
Tuscarawas	3	2								5
Vinton	1	1								2
Total	72	64	2	41	2	1	1	2	1	186

TABLE SHOWING THE NUMBER, MANUFACTURER OF AND LOCATION OF MINING MACHINES, ETC.—Continued.

Counties	Names of Mines	Electric Mine Machines						Compressed Air Mine Machines						Motors										
		Jeffrey	Morgan-Gardner	Independent Link Belt	General Electric	Harrison	Ingersoll-Sergeant	Goodman	Total Electric	Jeffrey	Harrison	Ingersoll-Sergeant	Whitcomb	Total Compressed Air	Jeffrey	Morgan-Gardner	Independent Link Belt	Goodman	General Electric	Baldwin Locomotive	N R Porte	Westinghouse	Baldwin - Westinghouse	Total Motors
Belmont	Imperial							1	3									1						1
	Shugler																							
	Hocking Mining Co.																							
	Scheuler	1																						
	Eclipse No. 3	2																						
	No. 51		3																					
	Maple Hill		3																					
	No. 29	1																						
	Twin Vein	1																						
	Franklin		3																					
	Cochran No. 1 and No. 2																							
	Neffs No. 2		3																					
	Moore Run		3																					
	Lydia																							
	Summit No. 1 and No. 2																							
	Koehnline																							
	Empire Nos. 1, 2 and 6	12																						
	Nail Mill	2																						
	Maple Hill	6																						
	Barton	9																						

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	Buckeye Nos. 2 and 3.	10	2		12		3		3		3
Jackson	Sand Run	2	1		3						
	Beatty Bros.	1			1						
	Snake Hollow No. 202.	1	2		3		1				
	Snake Hollow No. 207.	8	4		12						
	Snake Hollow No. 208.		1		1						
	Carbon Hill	1			1						
	No. 15 or Big Four.				1						
	Superior	30			30						
	Springfield	5			5						
	Milton No. 3.	1			1						
	Acorn		3		3						
	Jones & Morgan	2			2						
	Tom Corwin No. 1.	3	1		4		2				
	Grace	5			5						
	Fluhart No. 2.	2	1		3						
	Victor Royal			1	1						
	Mich. & Ohio.	2			2						
	Limestone		1		1						
	Wellston Fuel Co.		1		1						
	S. O. Coal Co.		1		1						
	Domestic	2			2						
	Jerry Morrow	3			3						
	McGhee	2	1		3						
	Enterprise	1			1						
	Milton No. 4.	8			8		1				
	Symmes Creek		1		1						
	Bat's Nest	1			1						
	McKitterick		3		3						
	Edgar Nos. 1 and 2.	6	5		1	12		3			
Jefferson	Dillon No. 2, Long Run, Connor No. 1, Connor No. 2.	28									
	Rush Run	5		4	32		9				
	High Shaft		2		5		1				
	Kelley No. 2.		4		2		1		1		
	Zerbe	5			4				1		
	Walnut Hill		6		1				2		
	La Belle				6	1					
	Brilliant	4					7				
	Diamond No. 3.	2			4		1				
					2						

[illegible]

TABLE SHOWING THE NUMBER, MANUFACTURER OF AND LOCATION OF MINING MACHINES, ETC.—Concluded.

Counties.	Names of Mines.	Electric Mine Machines.										Compressed Air Mine Machines.					Motors.										Total Motors.
		Jeffrey.	Morgan-Gardner.	Independent Link Belt.	General Electric.	Harrison.	Ingersoll-Sergeant.	Goodman.	Total Electric.	Jeffrey.	Harrison.	Ingersoll-Sergeant.	Whitcomb.	Total Compressed Air.	Jeffrey.	Morgan-Gardner.	Independent Link Belt.	Goodman.	General Electric.	Baldwin Locomotive.	N. R. Porter.	Westinghouse.	Baldwin - Westinghouse.				
Vinton	Goshen Shaft																										
	Novelty																										
	Beaver Dam	1																									
	Inghams																										
	Raccoon Valley		1																								
	Rock		1																								
	Alma	2																									
	Trace																										
	Total	450	290	2	7	7	4	128	888	6	44	27	10	87	72	64	2	41	2	1	1	2	1	186			

MINES AND MODE OF VENTILATION.

NEW MINES OPENED, SUSPENDED AND ABANDONED
FROM NOVEMBER 15, 1903, TO JANUARY 1, 1905.

Interest and activity in the coal industry as a profitable investment continued or has even been more marked during the above period than it was for the fiscal year ending November 15, 1903, and especially was this so during the early part of 1904, when many new, fine mines were opened up in various parts of the State most notably in Belmont and Jefferson counties in the Number Eight Vein and in Tuscarawas County in the Number Six Seam. Hocking and Perry counties also figured in a number of important openings in the Number Six Seam which will greatly increase their productive capacity.

In all one hundred and one (101) new mines were opened during the year, being an increase of fifteen (15) more than for the fiscal year previously reported.

The most important opening of new mines were in Jefferson County, where twelve were made; Athens, eleven; Belmont, eleven; Meigs, nine; Perry eight; Tuscarawas, six; Stark same number, and Jackson, five.

From various causes to which the industry is subject fifty-seven (57) mines suspended operation during the year, which was fifteen (15) more than remained active in the year 1903. Of this number Stark County reported seven; Lawrence six, Belmont five and Jackson five.

The number of mines abandoned or entirely worked out was thirty-seven (37), which was nineteen (19) more than for the previous year. Out of the number abandoned, Stark County had six; Tuscarawas five and Columbiana four.

NEW MINES OPENED, SUSPENDED AND ABANDONED.
ATHENS COUNTY.

New Mines.	Suspended.	Abandoned.
No. 209	No. 255	No. 29.
No. 210	Autley	
Johnson No. 3.	Black Diamond	
New York No. 2.	Federal Valley No. 1.	
Doanville No. 1A.		
Wells No. 2.		
No. 211		
Ogg.		
Hippel No. 2.		
Nelsonville Clay		
Nelsonville New		

BELMONT COUNTY.

New Mines.	Suspended.	Abandoned.
Summit No. 1.	Wegee	Wheeling Creek No. 1.
Summit No. 2.	Delora No. 2.	Crescent No. 2.
Black Oak	Kings Run	
Columbia	Morgan	
Provident	Belmont No. 1.	
Neffs No. 2.		
Lansing No. 2.		
Laughlin No. 2.		
Kings Run		
Crescent No. 6.		
Trolls No. 3.		

CARROLL COUNTY.

New Mines.	Suspended.	Abandoned.
Kirk	Heatherington No. 2.	
Russell Hill		
Rutay		
Big Four Clay.		

COLUMBIANA COUNTY.

New Mines.	Suspended.	Abandoned.
	Leetonia	Peerless.
	Salem	Salisbury.
	Pleasant Valley No. 7.	Cherry Valley No. 3.
	New Salisbury	Wheat Hill No. 1.

COSHOCKTON COUNTY.

New Mines.	Suspended.	Abandoned.
Oden Valley	Wade No. 2.....	
Locust Grove .....	.....

GALLIA COUNTY.

New Mines.	Suspended.	Abandoned.
Swan Creek	
Black Diamond	

GUERNSEY COUNTY.

New Mines.	Suspended.	Abandoned.
Cora	Leatherwood No. 2.....	Central.
Nicholson No. 2.....	C. C. C.....	Cisco.

HARRISON COUNTY.

New Mines.	Suspended.	Abandoned.
Freeport	
Adena	

HOCKING COUNTY.

New Mines.	Suspended.	Abandoned.
New Pittsburg No. 1, New Side	Lost Run.
New Pittsburg, Orbiston..	New Pittsburg No. 2.

HOLMES COUNTY.

New Mines.	Suspended.	Abandoned.
Brooks	
Purdy	

INSPECTOR OF MINES.

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JACKSON COUNTY.

New Mines.	Suspended.	Abandoned.
Jerry Morrow No. 1.....	Tom Corwin No. 2.....	Wainwright.
Maddox No. 2.....	Wainwright	Comet No. 2.
Michigan & Ohio.....	Enterprise	
McKinley	Comet	
Lindeman	Jones Coal Co.....	

JEFFERSON COUNTY.

New Mines.	Suspended.	Abandoned.
Block House, New.....	Forest City Clay.....	U. S. No. 4.
Jefferson No. 3.....	Calumet Coal	
Florence	Morris & Posten No. 2...	
Myers Clay .....	.....
East Ohio .....	.....
Plum Run No. 1.....	.....
Plum Run No. 2.....	.....
Plum Run No. 3.....	.....
Plum Run No. 4.....	.....
Rush Run No. 2.....	.....
Rush Run No. 3.....	.....
Walnut Hill No. 2.....	.....

LAWRENCE COUNTY.

New Mines.	Suspended.	Abandoned.
Ginn Brothers	Belfont	
Willard Lime No. 2.....	New Castle	
Willard Lime No. 3.....	Pine Grove Ore.....	
Willard Lime No. 4.....	Belfont No. 2.....	
.....	Black Fork	
.....	Clarion No. 5.....	

MAHONING COUNTY.

New Mines.	Suspended.	Abandoned.
North Lima	National.

MEDINA COUNTY.

New Mines.	Suspended.	Abandoned.
James No. 5.....	Easter.

MEIGS COUNTY.

New Mines.	Suspended.	Abandoned.
Rockville No. 2.....	Russell & Bear.....	
Kauff Bros.	Peacock	
Barton No. 1.....	Noble Summit	
Barton No. 2.....	.....
Millhorn .....	.....
Horden .....	.....
Myers .....	.....
Hedley .....	.....
Fohner .....	.....

MUSKINGUM COUNTY.

New Mines.	Suspended.	Abandoned.
No. 2 (Musk., Coal & Ry)	Miles	
.....	Cannellville	
.....	Diamond No. 3.....	

OTTAWA COUNTY.

New Mines.	Suspended.	Abandoned.
North Mine	Bessie.
South East	

PERRY COUNTY.

New Mines.	Suspended.	Abandoned.
Jobs No. 1.....	No. 13.....	No. 12 or Spring Valley.
Jobs No. 2.....	No. 253	Hamilton & Wallace No. 2
Valley No. 5.....	No. 268	Jones No. 13.
Indian Run .....	.....
New Crescent No. 1.....	.....
Rends No. 2.....	.....
Furnace No. 3.....	.....
Gosline .....	.....

PORTAGE COUNTY.

New Mines.	Suspended.	Abandoned.
Hutson No. 7.....	Hutson No. 6.

SCIOTO COUNTY.

New Mines.	Suspended.	Abandoned.
.....	Eifort No. 2	
.....	Irish Hollow	

STARK COUNTY.

New Mines.	Suspended.	Abandoned.
Rice No. 2	Eureka	Cassingham.
Booth	No. 17	Warwick No. 4.
Newman's Creek	No. 18	Canal Fulton No. 15.
Ray & Hess.	Geise No. 13	Elm Run No. 4.
Buckeye	Bramley	Pigeon Run.
Nat'l Fire Proofing Co.	Canton C. Min Co.	White Oak.
.....	East Massillon	

SUMMIT COUNTY.

New Mines.	Suspended.	Abandoned.
Gerrard No. 1	
Beechwood Massillon	

TRUMBULL COUNTY.

New Mines.	Suspended.	Abandoned.
.....	Applegarth	

TUSCARAWAS COUNTY.

New Mines.	Suspended.	Abandoned.
Central Valley No. 2	Acme	Huff's Run No. 2.
Wainwright No. 6	Dennison	Long Meadow.
Globe	Erhard	New Castle.
Royal Clay No. 1 .....	.....	Wainwright No. 5.
Royal Clay No. 2 .....	.....	Somerdale No. 2.
Royal Clay No. 3 .....	.....

VINTON COUNTY.

New Mines.	Suspended.	Abandoned.
Trace	Oreton	
Alma Cement	Quinshill	

WAYNE COUNTY.

New Mines.	Suspended.	Abandoned.
Doylestown No. 1.....	Dalton No. 14.....	Stewart.
Porter	West Lebanon No. 2.....	New Chippewa.
Hametown		

TABLE SHOWING THE NUMBER OF MINES OPENED, SUSPENDED AND ABANDONED DURING THE YEAR.

Counties.	Opened.	Suspended.	Abandoned.	Gain.
Athens	11	4	1	10
Belmont	11	5	2	9
Carroll	4	1		4
Columbiana		4	*4	
Coshocton	2	1		2
Gallia	2			2
Guernsey	2	2	2	
Harrison	2			2
Holmes	2			2
Hocking	2		2	
Jackson	5	5	2	3
Jefferson	12	3	1	11
Lawrence	4	6		4
Mahoning	1		1	
Medina	1		1	
Meigs	9	3		9
Morgan				
Monroe			*3	
Muskingum	1	3		1
Noble				
Ottawa	2		1	1
Perry	8	3	3	5
Portage	1		1	
Scioto		2		
Stark	6	7	6	
Summit	2			2
Trumbull		1		
Tuscarawas	6	3	5	1
Vinton	2	2		2
Washington				
Wayne	3	2	2	1
Total	101	57	37	71

* Loss.

NOTE.—

Total gain new mines	71
Loss, abandoned mines	7
Net gain for new mines	64

TABLE SHOWING THE NUMBER OF LARGE AND SMALL MINES IN THE STATE AND THE NUMBER OF EACH THAT WERE IN OPERATION DURING THE YEAR OF 1904.

Counties.	Large Mines.			Small Mines.			Total Number Large and Small Mines 1904.	Total Number Large and Small Mines 1903.	Gain.	Loss.
	Large Mines, More Than 10 Men.	Large Mines Idle in 1904.	Total Number Large Mines.	Small Mines, Less Than 10 Men.	Small Mines Idle in 1904.	Total Number Small Mines.				
Athens	43	3	46	14	1	15	61	51	10	....
Belmont	48	7	55	25	3	28	83	74	9	....
Carroll	12	...	12	12	...	12	24	20	4	....
Columbiana	20	4	24	20	3	23	47	51	...	4
Coshocton	13	1	14	9	...	9	23	21	2	....
Guernsey	22	4	26	9	1	10	36	36	...	...
Gallia	3	1	4	2	1	3	7	5	2	....
Harrison	8	...	8	29	1	30	38	36	2	....
Holmes	1	...	1	13	1	14	15	13	2	....
Hocking	19	...	19	2	...	2	21	21	...	...
Jackson	50	5	55	13	1	14	69	66	3	....
Jefferson	58	...	58	14	...	14	72	61	11	....
Lawrence	14	3	17	14	...	14	31	27	4	....
Mahoning	3	1	4	20	2	22	26	26	...	...
Medina	5	...	5	5	...	5	10	10	...	...
Meigs	16	2	18	22	1	23	41	32	9	....
Muskingum	14	1	15	60	2	62	77	76	1	....
Morgan	2	...	2	...	...	...	2	2	...	...
Monroe .....	...	...	...	...	...	...	...	3	...	3
Noble	2	...	2	35	5	40	42	42	...	...
Ottawa .....	...	...	...	1	...	1	...	...	1	....
Perry	49	5	54	38	2	40	94	89	5	....
Portage	3	...	3	...	...	...	3	3	...	...
Scioto	1	...	1	2	...	2	3	3	...	...
Stark	35	4	39	37	3	40	79	79	...	...
Summit	3	...	3	8	...	8	11	9	2	....
Trumbull	2	...	2	3	...	3	5	5	...	...
Tuscarawas	38	2	40	24	3	27	67	66	1	....
Vinton	12	1	13	5	...	5	18	16	2	....
Washington .....	...	...	...	1	...	1	1	1	...	...
Wayne	6	...	6	5	...	5	11	10	1	....
Total	502	44	546	442	30	472	1,018	954	71	7

NOTE:—

Total number mines 1904..... 1,018

Total number mines 1903..... 954

Net gain 64

Total gain in 18 counties..... 71 mines

Total losses in 2 counties..... 7 "

Leaving net gain for year of..... 64 "

TABLE SHOWING THE NUMBER OF MINES OPERATED AND DAYS WORKED IN 1903 AND 1904.

Counties.	Number Mines Worked in 1903.	Number Mines Worked in 1904.	Gain.	Loss.	Average Number Days Worked in 1903.	Average Number Days Worked in 1904.	Gain.	Loss.
Athens	48	59	11	.....	172	165	.....	7
Belmont	73	72	.....	1	180	176	.....	4
Carroll	20	27	7	.....	194	160	.....	34
Columbiana	48	42	.....	6	210	155	.....	55
Coshocton	21	20	.....	1	213	154	.....	59
Gallia	5	6	1	.....	185	143	.....	42
Guernsey	34	32	.....	2	160	169	9	.....
Harrison	32	35	3	.....	156	156	.....	.....
Holmes	13	12	.....	1	229	184	.....	45
Hocking	21	23	2	.....	179	185	6	.....
Jackson	66	73	7	.....	200	176	.....	24
Jefferson	61	77	16	.....	202	155	.....	47
Lawrence	24	27	3	.....	183	186	3	.....
Mahoning	23	23	.....	.....	201	180	.....	21
Medina	10	11	1	.....	226	161	.....	65
Meigs	31	35	4	.....	183	113	.....	70
Morgan	2	2	.....	.....	124	116	.....	8
Monroe	3	.....	.....	3	90	.....	.....	90
Muskingum	71	79	8	.....	190	120	.....	70
Noble	32	37	5	.....	150	176	26	.....
Perry	87	84	.....	3	167	137	.....	30
Portage	3	4	1	.....	167	145	.....	22
Scioto	3	5	2	.....	124	140	16	.....
Stark	77	66	.....	11	213	134	.....	79
Summit	9	9	.....	.....	161	131	.....	30
Trumbull	5	6	1	.....	148	113	.....	35
Tuscarawas	64	67	3	.....	193	157	.....	36
Vinton	15	17	2	.....	169	155	.....	14
Washington	1	1	.....	.....	150	220	70	.....
Wayne	10	8	.....	2	166	127	.....	39
Total	912	959	77	30	.....	.....	130	926

NOTE: — The average days used in this table for 1904 are the average between pick mines and machine mines, as they are considered together. Example: Athens County machine miners averaged 166 days, pick miners 164. average for the county, 165 days. The general *mean* average for pick and machine miners for the state is about 164 days.

TABLE SHOWING THE NUMBER OF MINES USING THE VARIOUS METHODS OF VENTILATION AND THE THREE KINDS OF OPENINGS.

Counties.	Drifts.	Shafts.	Slopes.	Opening Unknown.	Totals.	Fans.	Furnaces.	Fire Baskets.	Exhaust Steam.	Natural.	Method Ventilation Unknown.	Totals.
Athens	27	19	13	2	61	40	6	4	...	8	3	61
Belmont	62	7	12	2	83	34	28	...	...	19	2	83
Carroll	16	4	3	1	24	6	5	...	1	10	2	24
Columbiana	22	5	16	4	47	17	8	1	1	16	4	47
Coshocton	23	...	...	1	23	3	14	2	...	4	...	23
Gallia	6	1	...	...	7	...	5	...	...	2	...	7
Guernsey	12	16	8	...	36	19	4	2	...	8	3	36
Harrison	27	1	5	5	38	2	5	1	...	26	4	38
Hocking	20	...	1	...	21	9	2	5	...	5	...	21
Holmes	14	...	...	1	15	...	6	...	...	8	1	15
Jackson	33	23	10	3	69	38	20	7	...	1	3	69
Jefferson	59	6	3	4	72	38	11	1	...	17	5	72
Lawrence	26	...	...	5	31	2	9	...	...	15	5	31
Mahoning	6	8	8	4	26	5	7	...	1	13	...	26
Medina .....	...	1	8	1	10	...	2	1	7	...	...	10
Meigs	32	1	2	6	41	4	16	...	...	15	6	41
Morgan	1	...	1	...	2	1	1	...	...	...	...	2
Monroe .....	...	...	...	...	...	...	...	...	...	...	...	...
Muskingum	55	...	10	12	77	...	22	8	...	38	9	77
Noble	28	1	2	11	42	1	2	1	...	26	12	42
Ottawa	1	...	...	...	1	...	1	...	...	...	...	1
Perry	71	7	8	8	94	22	18	8	2	37	7	94
Portage .....	...	3	...	...	3	2	...	...	1	...	...	3
Scioto	3	...	...	...	3	...	1	...	...	2	...	3
Stark	21	37	14	7	79	21	15	2	13	21	7	79
Summit	4	3	4	...	11	1	...	1	4	5	...	11
Trumbull	1	1	2	1	5	...	2	1	...	2	...	5
Tuscarawas	55	1	7	4	67	9	34	4	...	17	3	67
Vinton	12	3	2	1	18	5	8	...	...	4	1	18
Washington .....	...	1	...	...	1	...	1	...	...	...	...	1
Wayne	2	4	3	2	11	3	1	1	4	1	1	11
Total	638	153	142	85	1,018	282	254	50	34	320	78	1,018

TABLE SHOWING THE NUMBER OF MINES EMPLOYING THE VARIOUS METHODS OF VENTILATION; AND THE THREE KINDS OF OPENINGS FROM 1892 TO 1904, INCLUSIVE.

Years.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
Drifts	303	676	657	749	821	800	921	789	696	625	589	591	698
Shafts	91	121	149	150	149	153	143	146	122	133	140	142	153
Slopes	40	61	61	68	66	85	145	133	140	149	142	140	142
Small mines, kind of opening unknown.....	458	151	296	220	167	190	46	65	114	99	96	81	85
Total	892	1,009	1,163	1,187	1,203	1,228	1,255	1,132	1,072	1,006	967	954	1,018
Fans	127	141	139	134	134	149	149	147	171	182	219	259	282
Furnaces	253	323	264	278	281	280	317	274	264	253	222	244	254
Fire baskets	11	23	32	36	38	51	45	41	48	40	57	44	50
Steam jets and ex. from pumps	30	39	43	48	52	49	47	34	33	44	45	32	34
Natural	205	316	378	452	528	516	636	523	453	389	336	302	320
Small mines, mode of ventilation not known.....	266	167	309	242	179	200	73	107	103	98	88	73	78
Total	892	1,009	1,165	1,190	1,212	1,245	1,267	1,126	1,072	1,006	967	954	1,018

MINES WHICH GENERATE LIGHT CARBURETTED HYDROGEN GAS.

(FIRE DAMP.)

While no serious catastrophes occurred during the year from this most deadly and treacherous element found in some of the mines of this State, which is so dangerous to the miner's vocation, quite a serious accident occurred in the Cleveland No. 1 mine on March 24th, by which five men were seriously burned from the ignition of fire damp. This accident happened in room No. 2 on the No. 1 North Entry. The Fire Boss in making his daily rounds at 6:30 A. M. discovered that this room had fallen in during the night. His safety lamp being out of order he went to the bottom of the shaft to repair it, warning the men not to enter the place until he returned. They stopped on the entry as directed. Wm. Christopher, a loader, on the parallel entry, started to examine the fall, the men at the entry cautioning him not to go into the room. He disobeyed orders, climbed up the fall and ignited the gas, burning himself and five others. The room was driven about 50 feet from the entry. It was most miraculous that even greater damage and injury was averted from this most foolhardy act.

On July 11th, Daniel Davis lost his life from being exposed to black damp in what is known as the Old Slope mine, located at Sherodsville, Ohio, in his effort to rescue Wm. Monroe. This old mine was being re-opened and the water pumped out with an electric pump. Wm. Monroe, a pumpman, and Mr. Stratton, an engineer, who were on their way to their employment, thought they would investigate and see in what condition the water was at the place where the pump had been stationed. Wm. Monroe was overcome with the damp and collapsed. His companion attempted to pull him out, but was unable to do so, and started to the city to solicit aid. Daniel Davis being the first to reach the grounds rushed to the rescue, and he, too, was overcome from the effects of the black damp and never rallied. After heroic treatment, Monroe was revived. It was the belief that there had been a heavy fall of slate in the mine, the force of which had driven the black damp out to the location of the pump. This being an old mine, better judgment should have been exercised in going into it.

The La Belle mine, located in Jefferson County — which for several years had been a source of serious concern on account of the amount of gas generated, and the number of fatal and serious accidents arising from this cause — prompted the Department in making a personal investigation and examination of this mine, shortly after assum-

ing the duties as Chief Inspector, in company with J. P. Davis, District Inspector, and which was also at the solicitation of the managers of the mine, who were desirous of dispensing with the use of safety lamps (which had previously been deemed necessary as a safeguard against the possibility of an explosion) the condition of the mine in their judgment warranting such discontinuation. After a careful examination, such discontinuation was not approved, the Department refusing to assume the responsibility, not through fear of any danger from fire damp generating in the development of the mine, but from the fact that this is an old mine and of extensive excavation, from the presence of falls and accumulation of water, the volume of air was considered inadequate to meet the demands that such conditions produced.

As the present workings of this mine are located on the West Virginia side, the question arose in our minds as to whether this Department had jurisdiction over this mine or not, and to fully satisfy ourselves on this point we solicited the opinion of the Attorney General of the State of Ohio as to our jurisdiction in the premises and were advised in a written opinion (the full text of which will be found in another portion of this report) that this Department had no jurisdiction beyond the low-water mark of the Ohio River on the Ohio side, and that while co-operation with the West Virginia Mining Department was absolutely essential, the only restrictions to be observed were to be in the orders given by the respective Departments within the limitations of their jurisdiction should be promulgated separately and not jointly. After considerable correspondence with the Mining Department of West Virginia, arrangements were made so that in the future joint examinations were to be made by the two Departments. On September 7th, this mine was inspected by Jas. P. Davis, Salem, Ohio, representing this Department, and Jerry Westlake, of the West Virginia Mining Department, at which time they reported the return to the use of naked lights with the exception of two instances where safety lamps were used in leading places and efforts on part of the management to shorten the circuit and increase the volume of air. The Company assumed all responsibility of abandoning the use of safety lamps at this time, but if the suggestions made by Mr. Davis and myself on our previous visit on July 22nd were carried out and maintained in regard to the air course, and the volume of air increased, the mine would be as safe as any other mine in the State generating fire damp.

While this Department did not advise dispensing with safety lamps, it is of the opinion that the La Belle mine is only one of quite a number of mines in the State where an adequate volume of air constantly circulating through them would be a much more reliable safeguard than safety lamps in the hands of many men who know nothing of their properties or uses or the dangers arising from tampering with them. Where it is absolutely necessary to use safety lamps our ex-

perience has been that too much is often depended on the lamp, and too little attention paid to the ventilation.

Mines which generate Fire Damp, as reported in 1904, number 89, as compared with 85 represented in 1903.

Nine mines, of which four are credited to Athens County, have been added to the list, as follows: Athens County, No. 209, No. 210, No. 211, and Johnson No. 3; Belmont County, Provident; Columbiana County, Big Walnut; Noble County, Noble; Perry County, San Toy No. 2; Tuscarawas County, Beaver Dam No. 2.

In Mahoning County, National was abandoned; Guernsey County, Cisco and Central were abandoned.

MINES WHICH GENERATE LIGHT CARBURETTED HYDRO- GEN GAS. (FIRE DAMP.)

ATHENS COUNTY.

No. 311.....	No. 23	Luhrig No. 1.
No. 252.....	McLeish No. 31.....	Luhrig No. 2.
No. 256.....	No. 275	Luhrig No. 3.
No. 266.....	No. 201	No. 281.
No. 267.....	Johnson No. 3.....	No. 255.
No. 204.....	No. 209	No. 10.
No. 24.....	No. 210	No. 211.

BELMONT COUNTY.

Captina	Wegee	Delora No. 1.
Provident	Black Oak	Delora No. 2.

CARROLL COUNTY.

Heatherington Big Vein....	Somers No. 3.
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COLUMBIANA COUNTY.

Pine Hill	New Shaft	Big Walnut.
Lisbon	New Slope	Cherry Valley.
Leetonia	McNabb	Farquhar Shaft.
Cedar Hill	Salem	

GUERNSEY COUNTY.

Old Orchard	Murray Hill	Kings.
Klondyke	Forsythe	Cleveland No. 1.
Hartford	Black Top	Walhounding.
Blue Bell	Imperial	Trail Run.
Detroit	Ideal	Little Kate.

JACKSON COUNTY.

Superior No. 9.....	Fluhart No. 3.....	Jerry Morrow No. 1.
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JEFFERSON COUNTY.

West Pittsburg	Brilliant	La Belle.
Zerbe	Rolling Mill No. 2.....	High Shaft.
Amsterdam		

MEIGS COUNTY.

Syracuse Slope	
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NOBLE COUNTY.

Noble	Laura.
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PERRY COUNTY.

San Toy No. 1.....	San Toy No. 2.....	No. 253.
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PORTAGE COUNTY.

Hutson No. 4..... Mullen Shaft.

STARK COUNTY.

Minglewood No. 1..... New Greenville No. 3..... Warwick No. 5.
Minglewood No. 2..... Central No. 7..... Stanwood No. 8.
Fox No. 12..... Geise No. 13..... Oakwood No. 16.
No 17 Pocock No. 3..... Elm Run No. 6.

TUSCARAWAS COUNTY.

Beaver Dam No. 1..... Beaver Dam No. 2..... Goshen Shaft.

**FIRE CLAY, LIMESTONE AND
IRON ORE.**

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PRODUCTION OF FIRE CLAY FOR THE YEAR 1904.

The Clay industry for the year 1904 shows a very decided gain over 1903 in the number of tons produced, men employed, and days worked, the net gain in tons produced being almost one-half million, actually 478,245 tons, over the year 1903. There were 187 more men employed and they worked an average of 46 more days.

In the year 1904 there were produced 2,045,848 tons of Clay (all grades); 1903, 1,567,603, a gain of 478,245 tons.

There were 1,147 men employed as against 960 for 1903, a gain of 187.

The average number of days worked in 1904 was 248 and in 1903, 202; this is also a gain of 46.

The same counties are found producing Clay in the year 1904 as in 1903, eighteen counties reporting. Tuscarawas comes first, with 363,936 tons; a gain of 184,586. Jefferson comes next in order, 358,555 tons; this is a gain of 54,458 tons. Summit county, 294,751 tons, a gain of 148,261; in point of gain this county stands second in order.

After Tuscarawas and Jefferson counties, in point of production the counties rank as follows: Summit, 294,751; Stark, 224,230; Columbiana, 165,459; Athens, 146,419; Carroll, 133,563; Hocking, 118,455; Perry, 104,937, the others falling below the 100,000 mark.

The table on page 115 will give the reader the details of the Clay production.

TABLE SHOWING THE PRODUCTION OF FIRE CLAY FOR THE YEAR OF 1904 AS COMPARED WITH 1903, AND THE NUMBER OF PERSONS EMPLOYED.

Counties.	Year 1903.			Year 1904.			Gain in Men.		Loss in Men.		Gain in Tons.	Loss in Tons.
	Average Number Days Worked 1903.	Number of Men Employed.	Number of Tons Mined in 1903.	Average Number Days Worked 1904.	Number of Men Employed.	Number of Tons Mined in 1904.						
Athens	245	44	103,132	335	64	146,419	20				43,287	
Carroll	194	45	69,270	240	86	133,563	41				64,293	
Columbiana	188	86	121,911	213	84	165,459			2		43,548	
Guernsey	230	10	3,705	166	2	5,580			8		1,875	
Hocking	277	51	116,882	279	46	118,455			5		1,573	
Holmes	240	4	5,000	258	3	3,800			1			1,200
Jackson	223	11	15,990	125	14	9,373	9					6,617
Jefferson	282	149	304,097	216	161	358,555	12				54,458	
Lawrence	83	24	14,066	91	30	23,321	6				9,255	
Mahoning	144	11	4,440	99	5	3,660			6			780
Muskingum	108	33	44,670	176	27	46,288					1,618	
Perry	153	32	52,569	245	81	104,937	49				52,968	
Scioto	226	85	76,632	281	61	36,949			24			99,683
Stark	250	189	293,919	286	147	224,230			42			69,689
Summit	237	53	146,490	226	136	294,751	83				148,261	
Trumbull	156	8	15,480	200	9	2,400			5			13,080

TABLE SHOWING THE PRODUCTION OF FIRE CLAY, ETC.—Concluded.

Counties.	Year 1903.				Year 1904.			
	Average Number Days Worked 1903.	Number of Men Employed.	Number of Tons Mined in 1903.	Average Number Days Worked 1904.	Number of Men Employed.	Number of Tons Mined in 1904.	Gain in Men.	Loss in Men.
Tuscarawas	209	125	179,350	266	192	363,936	67	.....
Vinton	.....	.....	.....	85	5	4,172	5	.....
Total	.....	960	1,567,603	.....	1,147	2,045,848	286	99
							184,586	.....
							4,172	.....
							609,294	131,049

NOTE.—

Total tons 1904..... 2,045,848
 Total tons 1903..... 1,567,603

Net gain tons..... 478,245

Total men 1904..... 1,147
 Total men 1903..... 960

Net gain men..... 187

Average number days worked 1904, 248 (i. e., 284,703 days by 1,147 men). Average number days worked 1903, 202; net gain days worked, 46.

TABLE SHOWING THE FIRE CLAY PRODUCTION OF THE STATE
FROM JANUARY 1, 1884, to DECEMBER 31, 1904 INCLUSIVE.

Years.	Output Tons.	Gain.	Loss.
1884	168,208		
1885	153,756		14,452
1886	266,709	112,953	
1887	366,476	99,767	
1888	471,794	105,313	
1889	574,129	102,335	
1890	833,159	259,030	
1891	1,087,560	254,401	
1892	1,253,110	165,550	
1893	1,032,348		220,762
1894	942,913		89,435
1895	844,832		97,081
1896	827,450		17,882
1897	822,727		4,723
1898	1,026,922	204,195	
1899	1,173,697	146,775	
1900	1,473,088	299,391	
1901	1,337,181		135,907
1902	1,528,829	191,648	
1903	1,567,603	38,774	
1904	2,045,848	478,245	

LIMESTONE PRODUCTION FOR THE YEAR 1904.

In making comparison of the lime stone industry for the year 1904, it seems to have been in most respects equal to that of 1903, the number of persons employed being 3976, and in 1904, 3848, which is a gain of 128.

The average number of days worked in 1904 was 229 (eight-hour days) as against 167 days for 1903. This is also a gain of 62 days. This apparently very large increase is due to the fact that in 1904 the days are computed upon an eight-hour basis, whereas in 1903 it was upon a nine and ten-hour basis. Both years would probably be about equal in this respect.

In finding the average number of days for the year 1904, the actual number of days in the year worked by all of the men in each quarry was the basis for the average number of days worked by each man in all the quarries.

In comparing the nine various classifications of lime stone products, gains are noted in five of them and losses in four.

The gains are as follows: In tons burned for lime in 1903, 548,068 tons; in 1904, 604,979 tons; a gain of 56,911 tons. In building stone in 1903, 286,683 cubic yards; in 1904, 323,209 cubic yards; a gain of 36,526 cubic yards. In stone for piers and protection purposes in 1903, 88,114; in 1904, 148,497; a gain of 60,383. A very slight gain is also noted in the stone used for flagging; 1903 was 44,330; 1904 was 44,638; a gain of 308 square feet. In stone used for curbing in 1903, there was 16,726; 1904, 20,363; a gain of 3637 lineal feet.

The Losses: Tons of 2000 lbs. burned for fluxing, 1903, 1,501,038 tons; in 1904, 1,402,829, a loss of 98,209 tons. In dimension stone, 1903, there were reported 106,861 cubic feet; in 1904, 102,044 cubic feet, a loss of 4817 cubic feet. Paving stone for 1903 was 204,648 square feet; in 1904, 146,934 square feet; this is also a loss of 57,714 square feet. Macadam, 1903, 1,721,687; 1904, 1,586,865; a loss of 134,822.

There were 38 counties which reported limestone product as against 37 in 1903. Darke and Union counties drop out, while Harrison, Tuscarawas and Vinton report, which is a net gain of one.

Of the counties which produce stone products, Erie, Clark, Franklin and Miami, lead in the order named.

The item of building stone is usually reported in perches, which vary in quantity in different parts of the state. Some give 16½ cubic feet to a perch, while others give 25 cubic feet. In this report it has been reduced to cubic yards, with a view of showing the quantity used for this purpose.

The table on pages 121-122 shows the various classifications of stone by counties as they were reported to the Department in the year 1904, from which the reader may get a more detailed account of the stone production and the persons engaged therein.

An accident caused by a premature explosion of dynamite which resulted disastrously in its effect, occurred during the year in an open quarry at the Alma Cement Works, at Oretton, Vinton County, Ohio, in which two men lost their lives and three were seriously injured. On the 17th of November District Mine Inspector Thomas Waters, of the First Mining District, and the writer were called upon to investigate this accident, which had occurred on the previous day. Our investigation, and also the evidence given at the inquest by parties who were eye-witnesses to the catastrophe, developed the following detailed account of the accident: Peter J. Boyce, W. O. Ellis, Wm. Artis, Wm. Wiseman, Noah Stout and others were working in the quarry, and Boyce and Artis were charging a drill hole with dynamite; Artis, who had charge of the work, was said to have been a practical man of long experience in that kind of work was standing over the hole and pushing down sticks of dynamite with a piece of $\frac{3}{4}$ -inch gas pipe about six feet long. Boyce was sitting close by and was unrolling the outer paper from the sticks of dynamite, handing them to Artis; seven sticks had been inserted in the hole, Boyce having six more in his hands or close by ready to hand to Artis, when a premature explosion took place. Boyce was thrown up in the air and terribly mangled, being instantly killed; Ellis had the fleshy part of his right leg torn off and other slight injuries, but died at midnight from heart failure. Artis suffered from compound fracture of the left leg, hands torn and body terribly shattered and cut, apparently by flying pieces of rock and dirt, and his eyes possibly injured. Wiseman's injuries were covered by a broken thigh bone on the right limb and slight bruises. Stout escaped with a slightly bruised foot.

Artis and Wiseman were visited, and their statements bear out the above. Lafe McDonald, who was working in the quarry at the time the explosion occurred, described the effects of the explosion and corroborated the foregoing details.

We examined the iron pipe referred to and found that it was battered and turned up at the end as if it had been frequently used for that purpose on similar occasions. Instructions were given that nothing harder than a wooden rod be used in inserting sticks of dynamite into drill holes.

The limestone industry of the State has hitherto not been a very extensive one, but the indications are that the manufacture of cement is going to increase, which will correspondingly increase the production and consumption of limestone and the development and methods of working it will demand greater attention.

The idea seems to prevail on the part of those interested that the

same care for the health and safety of employes in limestone quarries was not so important as that connected with the mining of coal, and the District Inspectors have at times had difficulty in their efforts to have the law complied with, but we are pleased to say that after a proper understanding and knowledge on the subject as to the requirements governing limestone quarries, no trouble has been experienced.

From the fact that so much dynamite is used in the production of limestone, and the dangers of handling it greater to those employed, and also from the fact that the mining of limestone is somewhat of recent date, a lack of proper system in producing it seems to exist as well as the application of law regarding it. Under such circumstances and conditions this Department expects to give special attention to limestone mines and quarries, and stringently apply the law and issue necessary rules to prevent accidents such as the one which has just been cited.

TABLE SHOWING THE PRODUCTION OF LIMESTONE IN OHIO DURING THE YEAR 1904. THE NUMBER OF PERSONS EMPLOYED AND THE AVERAGE NUMBER OF DAYS WORKED ON AN EIGHT-HOUR BASIS.

Counties.	Average Number Days Worked.	Number of Men Employed.	Number of Tons 2,000 Lbs. Each Burned for Lime.	Number of Tons 2,000 Lbs. Each Burned for Fluxing.	Cubic Feet of Dimension Stone.	Cubic Yards of Ordinary Building Stone.	Cubic Yards for Piers and Protection Purposes.	Sq. Feet of Flagging.	Sq. Feet of Paving.	Lineal Feet of Curbing.	Cubic Yards Ballast and Macadam.
Adams	133	7	140			7,513	4,000	18,600		1,000	3,900
Allen	194	119				2,278					54,837
Butler	258	5				24,178	1,775			1,845	188,855
Clark	281	364	47,427	235,408	18,403	3,652					578
Clermont	170	7			10,000	775			4,000		6,500
Clinton	72	27				1,200					39,077
Crawford	153	47	28			11,906	393			252	5,899
Delaware	343	51	14,149		350						
Darke											
Erie	305	610	91,272	766,580	5,500	3,537	23,304	3,000	95,313	200	156,434
Franklin	289	165	420	139,729	5,500	25,070		800	600	300	73,098
Greene	231	49	5,942			5,567				2,000	4,600
Hamilton	223	111	726		30	11,069					24,811
Hancock	165	24				3,907	350				15,500
Hardin	113	126									163,000
Harrison	200	2	3,500								600
Highland	205	19				226		250			28,205
Jackson	33	14		800							900
Lawrence	180	105	18,894	28,887							
Logan	126	45			20	7,965		1,000			19,400
Lucas	800	15				2,162					4,432
Marion	298	312	99,149	96,915		29,269		2,079			107,864
Mercer	172	8	595								4,000

TABLE SHOWING THE PRODUCTION OF LIMESTONE IN OHIO, ETC. — Concluded.

Counties.	Average Number Days Worked.	Number of Men Employed.	Number of Tons 2,000 Lbs. Burned for Lime.	Number of Tons 2,000 Lbs. Each Burned for Fluxing.	Cubic Feet of Dimension Stone.	Cubic Yards of Ordinary Building Stone.	Cubic Yards for Piers and Protection Purposes.	Sq. Feet of Flagging.	Sq. Feet of Paving.	Lineal Feet of Curbing.	Cubic Yards Ballast and Macadam.
Miami	141	145	154	18,000	14,194	27,249	3,900	13,000	3,130	8,500	50,985
Montgomery	222	76	5,145		29,292	26,700		739	33	320	29,640
Ottawa	313	556	251,478	88,976		2,875	109,029		32,788		12,000
Paulding	146	14				601					
Pickaway	160	2			1,252		71	2,000		2,406	
Preble	159	65	4,200		8,400	24,845	175	2,400			3,153
Putnam	132	53				3,156		300			25,593
Ross	327	35	855	241	9,103	6,105		470	11,070	3,540	12,521
Sandusky	238	62	12,380	12,632		5,626					19,350
Seneca	209	189	24,500			4,482	5,500				144,520
Scioto	152	31		14,661							
Stark	250	16	1,061								40,000
Tuscarawas	195	1	589								
Van Wert	181	161				1,720					241,860
Vinton	146	50									
Wood	98	288	22,375			79,576					109,828
Total		3,976	604,979	1,402,829	102,044	323,209	148,497	44,638	146,934	20,363	1,586,865

NOTE.—Average days, 229 (i. e., 911,816 days by 3,976 men).
 Average number eight-hour days, 229. The days used here have been reduced from ten to eight-hour days.
 Lawrence county produced 27,924 tons which were used for cement.
 Vinton county produced 26,206 tons which were used for cement.

TABLE SHOWING THE COMPARATIVE GAINS AND LOSSES IN THE VARIOUS CLASSIFICATIONS OF LIMESTONE PRODUCTION FOR 1904 AS COMPARED WITH 1903

Year.	Average Number of Days Worked.	Total Number of Persons Employed.	Number Tons of 2,000 Pounds Each Burned for Lime.	Number Tons of 2,000 Pounds Each Burned for Fluxing.	Cubic Feet of Dimension Stone.	Cubic Yards of Ordinary Building Stone.	Cubic Yards for Piers and Protection Purposes.	Square Feet of Flagging.	Square Feet of Paving.	Lineal Feet of Curbing.	Cubic Yards of Ballast and Macadam.
1904	7,453	3,976	604,979	1,402,829	102,044	323,209	148,497	44,638	146,934	20,363	1,586,865
1903	6,193	3,848	548,068	1,501,038	106,861	286,683	88,114	44,330	204,648	16,726	1,721,687
Gain	1,260	128	56,911			36,526	60,383	308		3,637	
Loss				98,209	4,817				57,714		134,822

TABLE SHOWING THE COMPARATIVE PRODUCTION OF LIMESTONE IN OHIO FROM 1886 TO 1904, INCLUSIVE.

Years.	Average Number Days Worked.	Number of Men Employed.	Number Tons of 2,000 Pounds Each Burned for Lime.	Number Tons of 2,000 Pounds Each Burned for Fluxing.	Cubic Feet of Dimension Stone.	Cubic Yards of Ordinary Building Stone.	Cubic Yards for Piers and Protection Purposes.	Square Feet of Flagging.	Square Feet of Paving.	Lineal Feet of Curbing.	Cubic Yards of Ballast and Macadam.
1886	149	2,383	517,270	328,080	566,697	295,231	63,050	187,900	154,636	60,650	186,810
1887	182	2,767	619,027	478,074	950,393	385,247	78,932	350,954	289,195	139,174	416,018
1888	165	3,025	602,074	666,481	1,795,038	.....	78,381	580,901	313,855	205,227	445,770
1889	165	2,631	849,442	235,298	898,886	304,685	69,876	413,400	586,361	209,339	354,544
1890	171	2,445	689,827	308,321	333,077	270,367	81,414	673,850	507,313	165,434	432,650
1891	143	3,286	744,946	284,478	634,901	361,637	65,295	417,855	4,948,939	200,756	622,194
1892	132	3,353	631,049	217,981	1,057,157	323,600	48,102	171,567	2,883,208	101,820	764,784
1893	149	2,929	396,690	108,376	748,712	290,014	57,374	226,654	393,883	209,327	757,142
1894	138	2,484	349,631	240,173	1,393,792	181,722	22,839	206,736	312,868	144,042	435,764
1895	127	3,229	1,175,988	429,632	500,648	253,900	48,075	573,634	640,836	152,873	650,212
1896	132	3,186	397,162	623,544	260,289	215,900	29,114	137,579	163,373	71,236	553,329
1897	131	3,308	481,871	320,437	371,741	248,392	97,548	145,331	113,025	55,168	629,044
1898	132	3,149	624,921	571,029	605,172	368,343	47,762	71,006	43,256	52,940	729,896
1899	142	3,165	626,274	791,701	405,112	264,640	87,099	100,133	81,796	57,091	864,349
1900	141	3,680	547,046	882,426	166,276	274,919	130,264	131,837	64,170	40,550	1,268,416
1901	154	4,135	554,523	1,419,087	318,995	304,312	134,784	103,177	48,512	37,828	1,551,378
1902	181	3,946	652,990	1,489,974	93,186	273,140	108,074	65,904	42,337	25,921	1,386,104
1903	167	3,848	548,068	1,501,038	106,861	286,683	88,114	44,330	204,648	16,726	1,721,687
1904	229	3,976	604,979	1,402,829	102,044	323,209	148,497	44,638	146,934	20,363	1,586,865
Gain over year 1903.	62	128	56,911	.....	.....	36,526	60,383	308	.....	3,637	.....
Loss from year 1903.	.....	.....	.....	98,209	4,817	.....	.....	.....	57,714	.....	184,822

TABLE SHOWING THE PRODUCTION OF IRON ORE BY COUNTIES
DURING THE YEARS 1903 AND 1904, AND THE LOSS AND GAIN
IN EACH COUNTY.

Counties.	1903.	1904.	Gain.	Loss.
Lawrence	4,761	1,178	.....	3,583
Jackson		9,825	9,825	.....
Scioto	8,234	9,649	1,415	.....
Total	12,995	20,652	11,240	3,583

Net gain, 7,657 tons.

IRON ORE MINES.

Name of Owner or Operator.	P. O. Address.
<i>Jackson County.</i>	
Star Furnace Co.....	Jackson.
<i>Lawrence County.</i>	
Hecla Charcoal Iron Co.....	Ironton.
Vernon Iron Co. (Idle).....	Campbell.
McGugin Iron & Coal Co.....	Olive Furnace.
Hanging Rock Iron Co.....	Hanging Rock.
<i>Scioto County.</i>	
Morgan & Horton.....	Eifort.
Hanging Rock Iron Co.....	Hanging Rock.
M. A. Clutts.....	Eifort.

TABLE SHOWING THE IRON ORE PRODUCTION OF THE STATE
FROM 1884 TO 1904, INCLUSIVE.

Years.	Blackband.			Hematite.			Total.
	Output Tons.	Loss.	Gain.	Output Tons.	Loss.	Gain.	
1884							276,286
1885	70,931			188,646			259,577
1886	83,947		13,012	260,537		71,891	344,484
1887	87,965		4,018	289,500		28,963	377,465
1888	82,054	5,911		171,298	118,202		253,352
1889	70,398	11,656		182,011		10,713	252,409
1890	41,848	28,550		127,240	54,771		169,088
1891	15,540	26,308		52,444	74,796		67,984
1892	8,680	6,860		81,042		28,598	89,722
1893	3,837	4,843		64,423	16,619		68,260
1894		3,837		58,043	6,380		58,043
1895				93,051		35,008	93,051
1896				70,765	22,286		70,765
1897				50,267	20,498		50,267
1898				51,659		1,392	51,659
1899				25,359	16,800		25,359
1900				52,266		26,907	52,266
1901				41,325	10,941		41,325
1902				10,681	30,644		10,681
1903				12,995		2,314	12,995
1904				20,652		7,657	20,652

ACCIDENTS.

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CASUALTIES FOR THE YEAR 1904.

While mine fatalities are alarmingly increasing, year after year, no effective means or rules for preventing this seemingly unnecessary loss of life has been put in practice. The increase is clearly traceable to a number of causes to which effective remedies can easily be applied. Evidence adduced at coroner's inquests and collected from the most reliable sources is conclusive proof that a large per cent. of all accidents in mines result from want of practical experience or training in such work, or from want of care on the part of the victim or utter disregard or consideration for the safety of others on the part of some one else.

These causes multiply entirely from the misconception as to the proper duties, responsibilities and powers of those in charge of mines in operating such mines, and the extent of the duties, liberties and legitimate rights and privileges of employees. We regret to say that a very great many mine bosses, if not the average mine boss, does not feel that he is under any obligation when he employs a miner to inform himself as to whether the man was ever in a coal mine before or not, or whether he has any practical knowledge or is capable of taking care of himself, nor does he feel called upon to instruct such employee as to the dangers that beset him or that are liable to occur to others through his ignorance or carelessness. All that is considered necessary by many mine bosses is to find a man a place and probably never see him again for weeks, unless he should come in contact with him in going to and from his daily work, while the mine boss usually spends much of his time as described by one of the District Inspector reports, about the pass-way "hustling to get the coal out," driving a mule or it may be on the outside dumping coal or trimming coal on the railroad cars. Again on the other hand, many employees believe that their individual liberties in a mine ought to have no limitation. When they are given a place they feel that this is "my place!" I can work it as I like; cut the coal or blast it off the solid; drill a hole on the rib and put in a big charge of powder and thereby endanger the lives of those working near them by blowing the shot through the rib or causing a blownout shot, resulting in a dust and smoke explosion and the destruction of life and property, and we even have instances where a Mine Committee ordered men to disregard the instructions of the Mine Inspector and mine management in the matter of posting a working place, claiming that the man had a right to post it or not, as he thought proper.

We are all pleased to testify that while there is a general lack of rules setting forth the duties of those employed and those operating

and managing mines, such cases as referred to are not encouraged or sustained by intelligent miners, miner's officials or by fair and reasonable operators, all of whom will freely admit that proper discipline is just as necessary in a coal mine as in the army or navy of the United State, and without such discipline life and property in the mines are not receiving the attention and protection they are entitled to from the State Government and from this Department.

Prompted by the alarming increase of fatal and serious accidents in the mines of Jefferson, Belmont and Harrison Counties, from what seemed to be unnecessary causes, we took the matter up with Mr. P. McBryde, Secretary of the Eastern Ohio or Pittsburgh Vein Coal Operators at Cleveland, Ohio, and on invitation met their Executive Committee on the subject, which resulted in a joint meeting of operators, miner's officials and representatives of this Department, and the issuing of Rules setting forth the duties of those in charge of mines and also that of all employees.

These Rules have been so kindly regarded and supported by both operators and miners, and the decrease of accidents so marked up to the end of the year 1904, that we are gratified and encouraged and contemplate issuing similar rules to every mining district in the State.

These Rules are published in full, and are as follows:

NOTICE.

TO THE MANAGEMENT AND EMPLOYEES AT ALL MINES IN THE
COUNTIES OF BELMONT, JEFFERSON AND HARRISON..

STATE MINING DEPARTMENT, COLUMBUS, OHIO, NOV. 14, 1904.

A very careful inquiry shows that the number of fatal and serious accidents in the mines in the above-named Counties is much in excess of what they should be, and that they are greatly and rapidly increasing, a large percentage of all the accidents being the result of inexperience or gross carelessness on part of the victims, together with a very serious want, in some instances, of that watchfulness and responsibility which the law requires, and which this Department expects and must exact from the Management of mines in the interest and protection of those under their employment and charge, and from all employees in the mines; hence in addition to other duties especially set forth in the Mining Laws, the following orders must be especially observed to the full extent of the ability of this Department to enforce them.

DUTIES OF EMPLOYEES AND THOSE IN CHARGE OF MINES.

RULE I. All persons not employees are forbidden to enter any mines or loiter around mines or the machinery connected therewith, without permission of the

management of the mines and accompanied by an employee designated by the management.

RULE II. All employees are forbidden to enter or travel around old works, or visit the working places of others where duty does not call them.

RULE III. Machine runners are forbidden to cut any place unless the soapstone has been taken down from the previous cut.

RULE IV. Loaders after machines are forbidden to load coal under soapstone or draw slate under any circumstances until it is made secure by ample posting, whether there is any apparent danger or not.

RULE V. When the working place of any miner, or loader, has been securely posted, and it is necessary for any machine runner to remove any posts for the purpose of conveniently cutting the place, or for any other cause, the machine runner positively must replace the posts before leaving such working place. Any violation of this rule must be reported to the management of mines by the man in charge of the place.

RULE VI. Trappers, switch boys, or other boys, employed in and around the mines, positively must not leave their places during working hours to go where duty does not call them, neither shall they run around with drivers, or ride on loaded or empty cars or trips under any circumstances, unless it is a part of their duty, and they are authorized to do so.

RULE VII. All employees are forbidden to ride on loaded cars or loaded trips, except drivers, trip riders or motormen who are in charge of such cars or trips.

RULE VIII. Drivers trapping their own doors must close them after passing through, and shall not prop them open until they return from the outside or from the inner workings.

RULE IX. Under no circumstances shall drivers ride with their feet on the tail chain, and on a down grade must not even ride on the front end of a loaded car.

RULE X. The trip rider, or motorman, or some person designated by the mine management, shall attach to the rear end of the rear car of both loaded and empty motor or locomotive trips a signal (light preferred), so that it can readily be seen, should the trip break in two, and a collision avoided.

RULE XI. No explosive shall be taken into or out of any part of the mine in mine cars propelled by electric power.

RULE XII. No person shall fire any shot until he has given warning to all those working near him, and knows that they are out of danger.

RULE XIII. Neither miners nor any other person shall keep blasting powder, or explosives, dangerously near the electric wire or power cable in any part of the mine where electric wires are in use, and in preparing cartridges no lighted lamps nor fire of any kind shall be used within six feet of where such cartridges are being prepared.

RULE XIV. All employees are forbidden to leave doors open, commit nuisances, block air-ways, or in any respect violate or ignore the provisions of the Mining Laws, or to use other than the proper legal test oil for illuminating purposes.

RULE XV. It is required that those employing men will not knowingly employ men who have not had previous knowledge in mine work, and set them to work alone where there is danger or responsibility if they can secure them work with a man already an employee and having a place in the mine, but if that cannot be done, and such inexperienced men are employed, they must be surrounded with such safe-guard as to reasonably protect them from danger at their working place until they are familiar with the dangers and customs, by having a responsible man instruct them in regard to such work and visit them twice a day at such times as he feels is necessary.

RULE XVI. The management of mines, through their mine boss, or his

assistant, or some responsible person or persons, designated by them, shall visit every working place in the mine where men are employed not less than every third day while men are at work, or should be at work, and as much oftener as in his judgment the circumstances require, and shall carefully examine the roof and advise and try to educate unskilled and careless men as to the best methods of doing their work and protect themselves from falling coal and roof, and if, in his judgment, any dangerous slate or roof should be taken down, or be more securely posted, he shall so order it done. He shall also see that sufficient timber is supplied to all working places, but if miners do not get necessary timbers when called for, or by the time they need them, they shall not work in danger, but must cease work and report the cause to those in charge of the mine.

N. B.—It is advised that the same man follow up this work as much as possible, so that he may become familiar with the condition and dangers as they exist in that part of the mine under his jurisdiction.

RULE XVII. Particular attention is called to Section 6871 of the Mining Laws, which clearly shows the duties, obligations and penalties for non-compliance with orders given by the management of mines as to the safety and proper securing of their working places, and violations of the Mining Laws, and is as follows:

SECTION 6871. Whoever knowingly violates any of the provisions of Sections 297, 298, 299, 300, 301, 302 and 305, or does any act whereby the life or health of the persons, or the security of any mine and machinery are endangered; or any miner or other person employed in any mine governed by this statute, who intentionally and wilfully neglects or refuses to securely prop the roof of any working place under his control; or neglects or refuses to obey any order given by the superintendent of a mine in relation to the security of the mine in the part thereof where he is at work, or for fifteen feet back from the face of his working place; or any miner, workman, or other person who shall knowingly injure any water-gauge, barometer, air-course or brattice, or shall obstruct or throw open any air-ways, or shall handle or disturb any part of the machinery of the hoisting engine, or open a door of the mine and not have the same closed again, whereby danger is produced either to the mine or those that work therein; or who shall enter any part of the mine against caution; or who shall disobey any order given in pursuance of this act; or who shall do any wilful act, whereby the lives and health of persons working in the mine, or the security of the mine, or the machinery thereof, is endangered; or any person having charge of a mine, whenever loss of life occurs by accident connected with the working of such mine, or by explosion, who neglects or refuses to give notice thereof forthwith, by mail or otherwise, to the chief inspector of mines, and to the coroner of the county in which such mine is situate; or any such coroner who neglects or refuses to hold an inquest upon the body of the person whose death has been thus caused, and return a copy of his findings and all the testimony to the inspector, shall be fined not less than fifty dollars, or imprisoned in the county jail not more than thirty days, or both. The owner, agent, or operator of every coal mine, shall keep a supply of timber constantly on hand, and shall deliver the same to the working place of the miner, and no miner shall be held responsible for accidents which may occur in mines where the provisions of this section have not been complied with by the owner, agent, or operator thereof.

RULE XVIII. The management of all mines must exercise such authority as given them by provisions of the Mining Laws as is necessary to establish and maintain such discipline amongst their employees as will insure the proper observance of the above orders from this Department and all other provisions of the Statutes under which mines are operated, and must immediately report to the District Inspector of their district, or this Department, any violations coming under their notice, and give such information as is in their possession to sustain action for prosecution for such violations.

The above orders have been carefully considered by the undersigned as in keeping with the discretionary power given to us as Inspectors as provided for in Section 292 of the Mining Laws, and in the interest of humanity and best management of Mines, and the Pittsburg Vein Operators of Ohio operating mines in the Counties of Belmont, Jefferson and Harrison have kindly voiced their approval of them, and assured us of their desire to assist in carrying them out, and from the favorable expressions of the Miners' State and Sub-District Officials, we also hope for the undivided assistance of Mine Workers. It must be understood, however, that they are not *mere suggestions*, and that any one violating them will be liable to all the penalties set forth in Section 6871 of the Mining Laws, and that as soon as posted at the mines this Department will rigidly enforce them.

(Signed) GEORGE HARRISON,
 Chief Inspector of Mines.
 THOMAS MCGOUGH,
 District Inspector, 4th Mining District.
 JAS. P. DAVIS,
 District Inspector, 6th Mining District.

TABLE SHOWING THE NUMBER OF FATAL, SERIOUS AND MINOR ACCIDENTS, AND THE NUMBER OF EACH CLASSIFICATION THAT OCCURRED IN EACH COUNTY FROM NOV. 15, 1903, TO DEC. 31, 1904, INCLUSIVE.

Counties.	Fatal.	Serious.	Minor.	Total.
Athens	9	43	18	70
Belmont	25	42	7	74
Carroll	1	4	.....	5
Columbiana	4	5	2	11
Coshocton	2	3	2	7
Gallia	2	1	.....	3
Guernsey	21	65	18	104
Harrison	3	11	5	19
Hocking	4	16	29	49
Holmes .....	.....	.....	.....	.....
Jackson	13	30	13	56
Jefferson	24	33	11	68
Lawrence	2	7	2	11
Mahoning .....	.....	1	1	2
Medina	1	.....	.....	1
Meigs	1	1	1	3
Morgan .....	.....	1	.....	1
Muskingum .....	.....	5	2	7
Noble	2	1	1	4
Perry	6	20	3	29
Portage	1	3	4	8
Scioto .....	.....	.....	.....	.....
Stark	4	18	5	27
Summit .....	.....	2	.....	2
Trumbull .....	.....	.....	.....	.....
Tuscarawas	11	22	7	40
Vinton	4	3	4	11
Washington .....	.....	.....	.....	.....
Wayne .....	.....	4	.....	4
Total	140	341	135	616

NOTE.—Accidents in the above table were sub-divided upon the following basis, to-wit:

Fatal accidents, those in which death occurred instantly, or later, from the immediate cause of the accident.

Serious accidents, those in which the person was disabled for more than three weeks.

Minor accidents, those in which the person was idle less than three weeks.

COMPARISON OF CASUALTIES FOR THE YEAR 1904, WITH
1903, I. E., FROM JANUARY 1, 1903, TO DECEMBER 31,
1904, INCLUSIVE.

The total number of accidents, fatal, serious and minor, reported for the year numbered 555, showing a decrease of 19 as compared with the previous year. The number of fatal accidents was 118, those of a serious nature, 316, and those of minor consequence, 121.

Fatal accidents were reported from nineteen of the coal producing counties, and accidents of all classifications from twenty-five counties. In the number of fatal accidents, Jefferson County leads, twenty-three in all being recorded. This is four less than this county reported during 1903. Belmont County reported nineteen fatal accidents, four more than for the previous year; Guernsey, nineteen, a gain of eight; Jackson, ten, a loss of seven; Tuscarawas, eight, a gain of four. Athens County reported eight fatal accidents, one less than in 1903; Perry, five, a loss of two, although the mines in this County were idle nearly six months of the year owing to a strike. The Counties of Belmont, Jefferson, Guernsey and Tuscarawas constitute 58.4 per cent. of the entire number of fatal accidents of the State for the year 1904.

In the number of serious accidents, Guernsey County leads, reporting 61; Belmont, 38; Athens, 43; Jefferson, 29; Jackson, 26; Tuscarawas, 22; Stark, 16, and Hocking, 14.

Minor accidents represent that class of accidents where the person injured is disabled less than three weeks, and in this classification Hocking County reported the greatest number, 29 in all; Athens, 17; Guernsey 17, and Jackson 9.

There were 208,337 tons of coal mined to the life lost; one person injured to every 82.5-10 persons employed, and one fatal accident to every 388 persons employed.

EXPLANATION OF ACCIDENT TABLES.

In comparing and considering the accidents for the year 1904, it should be noted that the accidents shown in the tables on pages 136 and 137 covered the period from November 15, 1903, to and including December 31, 1904. This is also true of the "Improvement Table" and the individual reports of the District Inspectors as shown on pages 365, 366, 175, 197, 223, 251, 275, 311, 341. The report in other detail covers the calendar year of 1904.

The reason for this arises from the fact that in former years the inspection year (i. e., the time at which the District Inspectors closed their individual reports, together with the list of accidents, improvement tables, etc.) closed with the fiscal year ending November 15th, of each year, while other statistical matter closed December 31st of each year and was for the calendar year.

The Department thought it advisable to have all matter contained in the report close with the calendar year, and in order to bring about the change extended that part of the report which formerly ended November 15th of each year, as noted above, to December 31, 1904. In order to enable the reader to make a fair comparison of the accidents, however, the actual number of accidents which occurred during each calendar year of 1903 and 1904 may be seen in the Summary, upon page 10, and a detailed account of them is set forth in the following article.

TABLE SHOWING A COMPARISON OF THE CASUALTIES OF 1904 AS COMPARED WITH 1903, ALLOWING THIRTEEN AND ONE-HALF MONTHS FOR THE YEAR 1904 AND GAIN AND LOSSES OCCURRING IN EACH.

Counties.	From November 15, 1902, to November 15, 1903 Inclusive.				From November 15, 1903, to December 31, 1904 Inclusive.				Gain.	Loss.
	Fatal.	Serious.	Minor.	Total.	Fatal.	Serious.	Minor.	Total.		
Athens	9	36	17	62	9	43	18	70	8	....
Belmont	15	36	12	63	25	42	7	74	11	....
Carroll	1	3	1	5	1	4	....	5	....	....
Columbiana	6	17	12	35	4	5	2	11	....	24
Coshocton	1	3	....	4	2	3	2	7	3	....
Gallia	1	....	....	1	2	1	....	3	2	....
Guernsey	11	44	16	71	21	65	18	104	33	....
Harrison .....	....	6	7	13	3	11	5	19	6	....
Holmes .....	....	....	....	....	....	....	....	....	....	....
Hocking	5	20	10	35	4	16	29	49	14	....
Jackson	17	29	12	58	13	30	13	56	....	2
Jefferson	27	37	11	75	24	33	11	68	....	7
Lawrence .....	....	3	4	7	2	7	2	11	4	....
Mahoning .....	....	1	1	2	....	1	1	2	....	....
Medina .....	....	....	....	....	1	....	....	1	1	....
Meigs	1	4	....	5	1	1	1	3	....	2
Morgan .....	....	....	1	1	....	1	....	1	....	....
Muskingum	1	4	1	6	....	5	2	7	1	....
Noble .....	....	....	1	1	2	1	1	4	3	....
Perry	7	28	6	41	6	20	3	29	....	12
Portage .....	....	....	8	8	1	3	4	8	....	....
Scioto .....	....	1	....	1	....	....	....	....	....	1
Stark	5	18	16	39	4	18	5	27	....	12
Summit .....	....	1	....	1	....	2	....	2	1	....
Trumbull .....	....	1	....	1	....	....	....	....	....	1
Tuscarawas	4	29	....	33	11	22	7	40	7	....
Vinton	2	3	....	5	4	3	4	11	6	....
Washington .....	....	....	....	....	....	....	....	....	....	....
Wayne	1	....	....	1	....	4	....	4	3	....
Total	114	324	136	574	140	341	135	616	103	61

NOTE.—Total gains in fifteen counties for the year 1904 were 103. Total losses in eight counties were 61. Making a net gain in all classes of accidents of 42. The time covered by the above table for 1904 is from November 15, 1903, to December 31, 1904 inclusive.

TABLE SHOWING THE COMPARISON OF THE ACCIDENTS OCCURRING DURING 1903 AND 1904, AS SHOWN ON OPPOSITE PAGE.

Counties.	Fatal.		Serious.		Minor.	
	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.
Athens			7		1	
Belmont	10		6			5
Carroll			1			1
Columbiana		2		12		10
Coshocton	1				2	
Gallia	1		1			
Guernsey	10		21		2	
Harrison	3		5			2
Hocking		1		4	19	
Holmes						
Jackson		4	1		1	
Jefferson		3		4		
Lawrence	2		4			2
Mahoning						
Medina	1					
Meigs				3	1	
Morgan			1			1
Monroe						
Muskingum		1	1		1	
Noble	2		1			
Perry		1		8		3
Portage	1		3			4
Scioto				1		
Stark		1				11
Summit			1			
Trumbull				1		
Tuscarawas	7			7	7	
Vinton	2				4	
Washington						
Wayne		1	4			
Total	40	14	57	40	38	39

NOTE.—

Total gains all accidents..... 135
 Total losses all accidents..... 93

Making net gain of..... 42

Net gain in fatal accidents..... 26
 Net gain in serious accidents..... 17

Total..... 43
 Net loss in minor accidents..... 1

Balance, or net gain, all accidents..... 42

CAUSES TO WHICH ACCIDENTS ARE ATTRIBUTABLE FROM
NOVEMBER 15, 1903, TO DECEMBER 31, 1904,
INCLUSIVE.

For years falls of roof have held first place to which accidents are attributable, and the year 1904 is no exception to this rule, 244 being due to this cause, being a gain of 13 over the preceding year. The number of fatal accidents due to this cause was 77, a gain of 7.

Mine cars caused the death of 17 persons, a gain of 8; four were killed by mining machines and 3 by motors. It will be seen to what extent mining machinery has added to the list the number of fatal accidents. The percentage of fatal accidents caused by mine cars increased 88.8-9 per cent; the rate of increase in the number killed by mine cars, mining machinery and motors is entirely too high, as they constitute that element connected with the mining of coal, which to a great degree, can be controlled and overcome if the proper precautions are taken and the right methods practiced to protect persons in mines from coming in contact with them.

Premature explosions and shots blowing through the rib resulted in 12 fatal accidents, 10 of that number being due to premature explosions, one more than for 1903.

One accident was due to the victim being overcome by black damp, the full particulars of which will be found in the "Special Article" on "Mines Which Generate Fire Damp," on page 108.

Two fatal accidents were attributable to miscellaneous causes, three from falling down shaft, 2 from electric wires, one falling from tibble, 1 crushed under mine cage, 1 from falling timber, and 1 from being run over by railroad cars.

In the serious list of accidents, 129 resulted from falls of roof—a gain of 5; 39 from falls of coal, a gain of 8; 15 from premature explosions, a loss of 1; 10 from explosions of gas, gain of 3; mine cars 93, a gain of 1; 15 accidents were due to miscellaneous causes.

In minor accidents, 38 were caused by falls of roof; 21 to falls of coal; 36 to mine cars, 10 to mining machines, and 15 to miscellaneous causes.

Thirty-nine (39%) percent. of the entire number of accidents were caused by falls of roof, 23 by mine cars, 12 by falls of coal, and mining machines and premature explosions each 5%. Twenty-two and seven-tenths per cent. (22.7%) of the entire number of accidents were fatal. Fifty-five per cent. (55%) of the number of fatal accidents was caused by falls of roof; 12 by mine cars, 10 by falls of coal and 7 by premature explosions.

TABLE SHOWING THE NUMBER AND CHARACTER OF ACCIDENTS, ETC. — Concluded

Counties.	Falls of Roof.			Falls of Coal.			Mine Cars, Mining Machines and Motors.			Premature Explosions.			Fire Damp.			Miscellaneous.			Total.			Grand Total for Each County.
	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	
Trumbull																						
Tuscarawas	3	7	4	3	1	1	3	6	2	1	3	1	1	1	5	1	1	1	11	22	7	40
Vinton					1	1	1			2	2								4	3	4	11
Washington																						
Wayne		3						1												4		4
Total	77	129	38	15	39	21	21	116	47	12	23	3	1	2	3	14	32	23	140	341	135	616

TABLE SHOWING THE NUMBER AND CHARACTER OF THE ACCIDENTS WHICH OCCURRED FROM NOV. 15, 1903, TO DEC. 31, 1904, INCLUSIVE, AND TO WHAT SOURCE THEY WERE ATTRIBUTABLE, WITH THE PERCENTAGE OF EACH CAUSE.

Various Causes of Accidents.	Fatal.	Serious.	Minor.	Total.	Percentage.
Falls of roof.....	77	129	38	244	39.6
Falls of coal.....	15	39	21	75	12.2
Mine cars	17	93	36	146	23.7
Premature explosions	10	15	6	31	5.
Explosions of gas.....	1	10	.....	11	2.
Falls down shaft.....	3	.....	.....	3	.5.
Crushed under cage.....	1	3	.....	4	.7
Falls from tippie.....	1	1	.....	2	.3
Kicked by mule.....	.....	3	5	8	1.3
Railroad cars	1	1	.....	2	.3
Falls of timber.....	1	5	2	8	1.3
Shot blowing through rib.....	2	.....	.....	2	.3
Electric wires	2	.....	1	3	.5.
Mining machines.....	4	19	10	33	5.3
Electric motors	3	8	1	12	2.
Miscellaneous	2	15	15	32	5.
Total	140	341	135	616	100

NOTE.—

Total accidents were..... 616

Total accidents for 1903 were..... 574

Making an increase of..... 42

or about 7 per cent of an increase.

Falls of roof, falls of coal and mine cars constituted about 75. per cent of the total accidents which happened last year.

TABLE SHOWING THE NUMBER OF ACCIDENTS AND THEIR CAUSES AS REPORTED TO THE DEPARTMENT, FROM NOVEMBER 15, 1888, TO DECEMBER 31, 1904, INCLUSIVE.

Years.	Falls of roof.	Falls of coal.	Injured by mine cars.	Premature explosion.	Explosions of gas.	Falls down shafts.	Crushed under cage.	Falls from tippie.	Kicked by mule or horse.	Injured by railway cars.	Falls of timber.	No cause given.	Shot blowing through rib.	Injured by miners' pick.	Heart failure.	Electric wires.	Injured by mining machines.	Electric motors.	Miscellaneous.	Totals.
1888	100	47	46	13	4	1	8	3	2	2	2	5	1	1	1	1	1	1	9	238
1889	92	50	48	12	4	2	6	1	4	2	1	3	1	1	1	1	1	1	11	230
1890	109	44	59	13	4	1	3	1	2	1	4	3	1	1	1	1	1	1	7	245
1891	112	26	47	24	6	1	3	1	5	1	2	3	1	1	1	1	1	1	14	242
1892	126	41	73	21	3	2	1	2	4	3	2	1	1	1	1	1	1	1	11	291
1893	118	55	88	17	2	5	1	4	6	5	5	1	3	3	1	1	1	1	14	327
1894	98	39	60	17	5	5	4	1	1	2	3	1	2	2	4	1	1	1	15	257
1895	108	46	67	23	1	1	3	1	4	2	1	1	3	1	2	1	3	1	8	271
1896	133	34	74	20	7	1	2	1	9	2	1	1	3	1	3	1	3	1	10	303
1897	98	48	70	16	5	2	1	1	6	2	1	1	4	1	1	1	7	1	12	277
1898	156	47	69	8	13	1	3	2	3	3	3	1	4	1	3	1	11	1	14	341
1899	153	52	100	20	10	3	6	2	6	5	4	1	3	1	3	1	8	1	13	390
1900	172	62	104	24	6	4	4	1	6	5	4	1	1	3	3	1	9	1	19	424
1901	191	62	147	14	6	4	7	1	12	5	6	1	1	1	1	1	12	1	50	514
1902	223	61	148	22	6	2	1	1	13	1	3	1	5	1	1	3	13	6	29	532
1903	231	56	151	28	14	1	1	1	7	1	5	1	5	1	1	4	15	7	51	574
1904	244	75	146	31	11	3	4	2	8	2	8	1	2	1	1	3	33	12	32	616
Total	2,464	845	1,497	323	107	32	50	20	98	33	48	11	41	17	14	14	114	25	319	6,072

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE LIFE LOST, TO THE SERIOUS INJURY AND TO THE TOTAL NUMBER OF FATAL AND SERIOUS ACCIDENTS FOR EACH YEAR SINCE THE CREATION OF THE DEPARTMENT.

Years.	Number of Fatal Accidents.	Number of Serious Accidents.	Number of Tons Mined to the Person Killed or Seriously Injured and Number of Tons to the Total.			Name of Chief Mine Inspector.
			Fatal.	Serious.	Total.	
1874.....	20	80	108,919	4,844	31,419	Andrew Roy.
1875.....	23	40	202,667	121,606	77,210	"
1876.....	13	70	269,999	50,000	42,168	"
1877.....	30	39	175,000	134,615	76,087	"
1878.....	20	.....	.....	.....	.....	Jas. D. Poston.
1879.....	.....	.....	.....	.....	.....	David Owen.
1880.....	22	61	292,624	114,754	84,217	Andrew Roy.
1881.....	29	.....	283,621	.....	.....	"
1882.....	25	.....	378,000	.....	.....	"
1883.....	26	.....	316,516	.....	.....	"
1884.....	26	40	226,636	143,433	86,932	Thos. B. Bancroft.
1885.....	51	32	244,258	153,258	94,170	"
1886.....	43	65	194,308	194,772	78,104	"
1887.....	36	75	286,158	137,356	92,808	"
1888.....	29	79	376,239	138,113	100,934	Robt. M. Haseltine.
1889.....	33	52	330,527	209,757	128,322	"
1890.....	42	52	280,687	226,708	125,413	"
1891.....	44	66	296,595	197,730	118,636	"
1892.....	42	93	347,929	157,129	108,170	"
1893.....	32	123	463,378	120,553	95,655	"
1894.....	45	116	364,672	102,674	73,976	"
1895.....	52	152	263,151	90,025	67,078	"
1896.....	41	159	314,942	81,211	64,563	"
1897.....	40	142	311,221	87,668	68,400	"
1898.....	52	155	270,463	90,736	67,913	"
1899.....	59	204	269,643	77,985	60,490	"
1900.....	68	207	285,686	93,848	70,643	Elmer G. Biddison.
1901.....	72	276	282,240	73,627	58,394	"
1902.....	81	298	293,818	80,299	63,138	"
1903.....	114	324	215,555	75,843	42,810	"
1904.....	118	316	208,337	56,256	44,295	Geo. Harrison.

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AND COUNTRIES SINCE 1886, AS COMPARED WITH OHIO.

	1886.		1887.		Number of miners for each life lost.		Number of tons mined for each accident.		1888.		Number of miners for each life lost.	
	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.
Colorado	165,987	.....	149,311	34,456	.....	75,361	27,319	.....	602	.....	.....	.....
Great Britain	214,909	.....	162,934	.....	551	191,369	.....	551	535	.....	.....	.....
Illinois	428,571	66,126	303,002	69,017	654	260,512	80,046	.....	.....	.....	.....	.....
Indiana	183,494	333,333	.....	.....	.....	196,311	157,049	.....	.....	.....	.....	.....
Iowa	.....	350,306	227,323	56,830	799	177,401	49,832	.....	458	.....	.....	.....
Kansas	235,714	61,111	224,297	52,336	929	154,826	45,874	.....	631	.....	.....	.....
Kentucky	.....	.....	256,172	163,019	.....	.....	.....	.....	.....	.....	.....	.....
Maryland	50,654	21,769	.....	.....	.....	150,383	105,674	.....	210	.....	.....	.....
Missouri	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montana	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nova Scotia	194,309	129,772	238,691	167,083	.....	888,064	59,204	.....	2,325	.....	.....	.....
Ohio	175,311	53,672	286,158	137,356	474	376,239	138,113	.....	765	.....	.....	.....
Pennsylvania	.....	.....	169,327	151,900	440	166,532	56,849	.....	361	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia	.....	.....	.....	.....	.....	191,984	63,152	.....	346	.....	.....	.....

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AND COUNTRIES SINCE 1886, AS COMPARED WITH OHIO.—Continued.

	1889.		Number of miners for each life lost.	1890.		Number of miners for each life lost.	1891.		Number of miners for each life lost.
	Number of tons mined for each accident.			Number of tons mined for each accident.			Number of tons mined for each accident.		
	Fatal.	Non-fatal.		Fatal.	Non-fatal.		Fatal.	Non-fatal.	
Colorado	178,227	.....	530	104,375	31,385	239	121,126	27,230	227
Great Britain	333,745	.....	716	286,316	51,955	539	261,012	42,672	549
Illinois	.....	69,738	.....	1,239,429	578,400	936	.....	.....	.....
Indiana	.....	.....	.....	331,709	132,083	824	206,776	88,618	507
Iowa	98,600	52,772	321	314,506	125,802	955	250,339	78,678	813
Kansas	.....	.....	.....	233,089	101,343	406	184,383	.....	542
Kentucky	156,136	56,792	378	.....	.....	.....	380,084	285,063	437
Maryland	.....	.....	.....	243,739	87,049	765	147,223	82,813	413
Missouri	222,347	111,173	514	.....	.....	.....	.....	.....	.....
Montana	.....	.....	1,818	.....	.....	.....	.....	.....	.....
Nova Scotia	219,539	97,571	646	220,444	94,479	591	681,594	638,996	1,915
Ohio	330,527	209,757	615	280,687	226,708	456	296,595	65,910	545
Pennsylvania	150,202	56,780	144	154,257	58,235	181	131,980	64,814	287
Tennessee	.....	.....	.....	.....	.....	.....	109,295	43,718	253
Utah	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia	.....	206,358	.....	206,358	54,450	327	202,262	104,020	362

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AND COUNTRIES SINCE 1886, AS COMPARED WITH OHIO.—Continued.

	1892.		Number of miners for each life lost.	1893.		Number of miners for each life lost.	1894.		Number of miners for each life lost.
	Number of tons mined for each accident.			Number of tons mined for each accident.			Number of tons mined for each accident.		
	Fatal.	Non-fatal.		Fatal.	Non-fatal.		Fatal.	Non-fatal.	
Alabama	110 330	30 170	223	310 000	30 371	529	229 200	32 848	470
Colorado	313 372	46 114	590	289 124	49 503	513	237 688	32 848	534
Great Britain	236 569	166 474	370	198 132	124 539	338	198 809	134 906	540
Illinois	292 373	87 988	465	159 133	85 461	361	138 803	68 136	388
Indiana				221 687	47 245	659	295 719	155 642	803
Iowa				291 854	132 090	939	443 140	238 614	255
Kansas	378 412	151 364	1 186	665 549	415 968	814	125 438	82 271	559
Kentucky	510 818	170 273	661	151 926	122 709	369	304 672	102 674	401
Maryland	150 864	73 592	401	336 543	35 802	1 178	151 521	66 776	233
Missouri	161 898	48 569	642	436 120	50 608	847	76 688	122 700	233
Nova Scotia	347 929	58 634	454	167 711	68 270	382	181 739	52 205	461
Ohio	177 983	76 166	454						
Pennsylvania	166 619	80 437	415	128 633	24 396	457			
South Dakota	180 836	40 186		418 049	41 804	829			
Tennessee	20 738	27 157	72	134 317	31 812	314			
Utah	241 969	81 167	384	151 790	77 510	172			
Washington							178 974	81 856	68
West Virginia									

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AND COUNTRIES SINCE 1886, AS COMPARED WITH OHIO.—Continued.

	1895.		Number of miners for each life lost.	1896.		Number of miners for each life lost.	1897.		Number of miners for each life lost.
	Number of tons mined for each accident.			Number of tons mined for each accident.			Number of tons mined for each accident.		
	Fatal.	Non-fatal.		Fatal.	Non-fatal.		Fatal.	Non-fatal.	
Alabama	150,150	29,553	217	205,201	57,146	353	151,122	926	
Colorado	145,195		320	49,582		99			
Great Britain				190,596		696	207,739	715	
Illinois	236,478	29,312	515	256,969	29,444	429	290,910	38,751	
Indiana	187,438	81,360	343	145,290	61,638		264,225	176,170	
Iowa	159,792	76,091	550	153,282	75,010	498	172,715	70,865	
Kansas	319,084	75,972	936	265,979	127,609	734	549,468	109,893	
Kentucky	400,971	178,209	983	530,580	167,551	1,258	275,338	122,372	
Maryland	386,611	267,653							
Missouri	175,621	152,205	557	151,272	121,007	412	303,674	105,625	
Nova Scotia									
Ohio	263,151	90,025	431	314,942	81,211	694	311,221	87,668	
Pennsylvania	178,600	68,715	397	144,205	84,419	342	177,350	91,836	
South Dakota									
Tennessee	8,530		138	121,077	50,259	296	237,211	633	
Utah				125,811	55,916		194,031	32,338	
Washington	33,249	48,489		150,316	40,084		190,027	31,671	
West Virginia	118,965		224	205,692	101,287	372	209,040	77,607	

	1898.		Number of miners for each life lost.	1899.		Number of miners for each life lost.	1900.		Number of miners for each life lost.
	Number of tons mined for each accident.			Number of tons mined for each accident.			Number of tons mined for each accident.		
	Fatal.	Non-fatal.		Fatal.	Non-fatal.		Fatal.	Non-fatal.	
Alabama	143,705		220	187,119	213,851	323	223,603	461,538	386
Colorado							189,508	87,294	
Great Britain	224,991								
Illinois	247,991		407	278,982	39,254	440	267,595	41,108	419
Indiana	233,951	42,464		390,998	43,444	424	349,059	35,301	549
Iowa				247,470	190,365	401	98,943	57,892	194
Kansas				256,056	91,042	637			
Kentucky	590,355		1,401	643,634	75,313	1,379	235,334	54,572	601
Maryland	1,031,611	133,111	1,143				437,863		663
Missouri	315,350	105,117	821	227,986	138,752		299,502	150,115	764
Nova Scotia				146,796	165,146				
Ohio	270,403	90,736	545	269,643	77,985	475	285,692	54,560	466
Pennsylvania	332,852	140,278		283,167	184,451	430	299,300	135,786	421
Tennessee	162,499	71,738	411	186,806	50,454	384	390,404		369
Utah	224,432	48,093			23,733		5,904	19,587	8
Washington	197,251	23,670	187	42,613	29,965	73	73,243	31,000	128
West Virginia	184,026	132,316	237	182,529	84,197	221	133,949	107,312	154

STATES AND COUNTRIES SINCE 1886, AS COMPARED WITH OHIO.—Continued.

	1901.		Number of miners for each life lost.	1902.		Number of miners for each life lost.	1903.		Number of miners for each life lost.
	Number of tons mined for each accident.			Number of tons mined for each accident.			Number of tons mined for each accident.		
	Fatal.	Non-fatal.		Fatal.	Non-fatal.		Fatal.	Non-fatal.	
Alabama	218,186	.....	345	206,589	.....	358	205,276	.....	389
Colorado	108,698	.....	145	103,054	88,508	123	194,382	70,684	257
Illinois	263,716	.....	311	303,245	73,944	465	224,073	85,257	319
Indiana	292,466	36,182	504	265,133	60,436	547	181,683	45,011	.....
Iowa	165,232	102,704	179	210,776	92,741	539	262,152	106,803	578
Kansas	267,806	.....	439	180,359	73,668	321	167,464	61,596	297
Kentucky	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland	426,074	.....	448	.....	.....	.....	.....	.....	.....
Missouri	253,333	.....	615	406,357	225,754	916	250,902	157,975	539
Nova Scotia	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	282,240	45,976	465	293,818	53,058	462	215,555	53,420	363
Pennsylvania	268,818	123,345	391	216,987	114,920	297	257,985	99,149	377
Tennessee	86,038	47,321	191	18,727	100,770	39	185,029	68,725	372
Utah	153,607	115,205	198	205,179	91,191	308	251,739	50,348	312
Washington	92,748	30,171	178	91,266	30,050	179	127,619	38,439	195
West Virginia	154,738	111,755	249	194,659	97,736	.....	144,111	102,752	248

July	8	Wm. Reynolds	American	45	Injured by a fall of coal; died July 12th.	Blue Bell	Guernsey.
July	11	Martin Elik	Slav	43	Killed by a fall of coal.	Blue Bell	Guernsey.
August	2	George L. Jordan	American	26	Killed by a fall of slate.	Detroit	Guernsey.
August	30	Michael Sullivan	Irish	37	Killed by falling under mine car.	Kings	Guernsey.
September	8	Frank Binder	Austrian	44	Killed by undermining a standing shot.	Blue Bell	Guernsey.
September	15	Paul Bales	Slav	26	Killed by a fall of slate.	Blue Bell	Guernsey.
October	15	Sylvanus Slay	American	57	Injured by a fall of coal; died Oct. 11, 1904.	Old Orchard	Guernsey.
November	3	James Unger	American	37	Killed by a fall of slate.	Old Orchard	Guernsey.
December	6	Stephen Clarsh	Prussian	27	Killed by a fall of slate.	Detroit	Guernsey.
December	30	John Matula	Austrian	37	Killed by a fall of stone.	Blue Bell	Guernsey.
HARRISON COUNTY.							
1903.	19	Jacob Heinz	American	23	Killed by coming in contact with loaded trip.	Roby No. 2	Harrison.
1904.	23	Edw. Hawthorn	Hungarian	20	Killed by a fall of stone.	Roby No. 2	Harrison.
January	23	Wm. Stevens	American	34	Killed by a fall of slate.	Ewing	Harrison.
HOCKING COUNTY.							
1903.	21	Joseph Deible	American	21	Killed by a fall of coal.	Lost Run	Hocking.
1904.	2	Ios. Kocinski	Polish	43	Killed by a fall of roof.	Jobs No. 3	Hocking.
October	12	Hamilton Coalgrove	American	60	Killed by a fall of slate.	No. 238	Hocking.
November	3	Homer Frazee	American	16	Killed by riding on a loaded trip.	New Pittsburg No. 5	Hocking.
JACKSON COUNTY.							
1903.	16	George Coners	American	22	Injured by a fall of clay; died March 3rd.	Shawnee Hill	Jackson.
November	18	H. J. Jones	American	32	Killed by a fall of rock.	Superior No. 8	Jackson.
November	30	Elmer Plummer	American	27	Killed by a fall of stone.	Grace	Jackson.
1904.	24	David Peyatt	American	15	Injured by an explosion of powder; died Mar. 5th.	Mattox	Jackson.
March	4	Martin Trace	German	24	Back broken by a fall of slate; died March 5th.	Superior No. 8	Jackson.
March	4	Frank Clare	American	49	Killed by a fall of slate.	Star Furnace	Jackson.
June	24	Robt. Loudmilk	American	42	Killed by an explosion of dynamite.	Morrow No. 1	Jackson.
August	17	Chas. Zimmerman	German	98	Killed by a fall of slate.	Milton No. 3	Jackson.
August	23	Samuel Butts	American	33	Killed by a fall of slate.	Grace	Jackson.
August	23	Green Grant	American	33	Injured by a fall of slate; died September 4th.	Grace	Jackson.
September	14	Wm. Stevens	American	34	Killed by a fall of slate.	Superior No. 9	Jackson.
October	10	Thos. C. Williams	Welsh	45	Killed by a fall of clay.	Davis of O. H.	Jackson.
October	26	Wm. Pearce	American	37	Killed by being caught between railroad cars.	Superior No. 8	Jackson.
JEFFERSON COUNTY.							
1903.	24	H. A. Crippen	American	46	Killed by being run over by mine cars.	Morris & Posten	Jefferson.
1904.	11	Vergin Galus	Pole	23	Killed by being run over with a mining machine.	United States	Jefferson.
January	11	Thos. A. Fawcett	American	52	Killed by mine car	West Pittsburgh	Jefferson.
February	26	Henry Gregor	English	33	Killed by falling down an airshaft.	Amsterdam	Jefferson.

FATAL ACCIDENTS — Concluded.

Date.	Name.	Nationality.	Age.	Cause of Casualty.	Name of Mine.	County.
February	Banji Dolanski	Polish	33	Injured by a fall of stone; died March 20th.	Long Run	Jefferson.
March	Frank Kershon	Hungarian	34	Killed by a fall of stone.	Long Run	Jefferson.
March	Stanly Bobak	Polish	22	Killed by a fall of stone.	Hillon No. 2	Jefferson.
April	Constantius Jacomin	Italian	26	Injured by being caught in mining machine; died April 9th.	Jefferson No. 1	Jefferson.
April	Guisetti Calderelli	Italian	20	Killed by a fall of drawslate.	Jefferson No. 2	Jefferson.
May	John Boynter	American	26	Killed by a fall of slate.	Zerbe	Jefferson.
June	Aber Darin	Italian	24	Killed by coming in contact with an electric wire.	American	Jefferson.
June	Thomas Gibbs	American	20	Killed by mine car jumping the track.	U. S. No. 9	Jefferson.
July	Michael Kopata	Polish	25	Killed by a fall of stone.	Edgar No. 1	Jefferson.
July	James Crist	Italian	23	Killed by being caught between car and rib.	U. S.	Jefferson.
August	Joseph Bellow	Hungarian	25	Killed by being run over by mine cars.	Rush Run	Jefferson.
August	Fred Cervenka	Bohemian	18	Killed by a fall of slate.	Edgar No. 2	Jefferson.
August	James Malnee	Bohemian	35	Injured by a fall of slate on August 30th; died September 7th.	U. S.	Jefferson.
September	Ross Degarmo	American	43	Killed by coming in contact with an electric wire.	Kelley No. 2	Jefferson.
September	Emery Labantz	Hungarian	40	Killed by a fall of stone.	O'Neil	Jefferson.
October	Joseph Yukus	American	35	Killed by a fall of stone.	Russell	Jefferson.
October	John Chitka	Slav	33	Killed by a powder explosion.	Plum No. 4	Jefferson.
October	Amadis Francemelli	Italian	23	Killed by a fall of soapstone.	Jefferson No. 1	Jefferson.
October	Andy Maleck	Polish	33	Injured by a fall of soapstone; died October 20th, 1904.	Walnut Hill	Jefferson.
November	Jasco Harden	Russian	22	Killed by being squeezed between roof and water box.	Conner No. 1	Jefferson.
1903.				LAWRENCE COUNTY.		
December	Henry Abrams	American	48	Killed by a falling post.	Willard	Lawrence.
1904.						
September	Columbus Payne	American	47	Killed by a fall of slate.	Kingery	Lawrence.
1904.				MEDINA COUNTY.		
October	George Harper	English	45	Injured by a cavein.	Wayne No. 2	Medina.
1903.				MEIGS COUNTY.		
December	Charles McKnight	American	36	Killed by a fall of slate.	Kings	Meigs.

NOBLE COUNTY.									
1904.	4	Michael Inteko	Slav	24	Killed by a fall of stone.			Laura Imperial	Noble.
January	17	Wm. Tolbert	American	45	Killed by falling down shaft.				Noble.
PERRY COUNTY.									
1903.	1	James Duffy	Scotch	44	Killed by a fall of slate.			Buckingham	Perry.
1904.	12	Thomas Coyne	Irish	64	Killed by being run over by an electric motor.			No. 301	Perry.
August	7	George Greene, jr.	American	21	Killed by being caught between mine door and motor.			Lyonsdale	Perry.
October	17	Elmer Gatchell	American	35	Killed by a fall of stone.			Law	Perry.
November	12	Thomas Evans	Welsh	48	Killed by fall of rock.			XX	Perry.
December	3	Henry Dobbins	American	27	Killed by being caught in a mining machine.			Pedlow	Perry.
PORTAGE COUNTY.									
June	24	Frank Kale	American	36	Killed by a fall of soapstone in the air shaft.			Mullins	Portage.
STARK COUNTY.									
1904.	23	John Fothergill	English	62	Killed by a fall of stone.			No. 5	Stark.
February	23	Chas. Fothergill	English	21	Killed by a fall of stone.			No. 5	Stark.
February	23	George Legg	English	19	Injured by a shot blowing through the rib; died February 26th.			Massillon No. 1	Stark.
August	23	Chas. Deltra	American	21	Killed by falling down shaft.			Beechwood	Stark.
TUSCARAWAS COUNTY.									
1903.	21	James McQuade	American	34	Killed by being run over by mine cars.			East Goshen No. 2	Tuscarawas.
December	21	Kudolph Sauer	German	36	Injured by a fall of coal; died January 26, 1904.			Central Valley	Tuscarawas.
December	30	Jacob McPherson	American	42	Killed by a fall of coal.			Royal No. 1	Tuscarawas.
1904.	5	Lewis Sovereign	American	37	Injured by cars coming off cage in chute.			Goshen	Tuscarawas.
January	11	Charles Wenger	Swiss	30	Killed by falling from trestle.			Midvale No. 4	Tuscarawas.
March	25	Henry Bell	English	23	Killed by being struck by coal from a flying shot.			Huffs Run No. 1	Tuscarawas.
May	2	Elmer Brown	American	24	Killed by a fall of rock.			Beaver	Tuscarawas.
June	16	Bernardo Piloni	Italian	38	Killed by a premature explosion.			West Goshen	Tuscarawas.
September	31	Morgan Wheaton	American	39	Killed by fall and cavern.			Daylight	Tuscarawas.
October	30	Simon Shorb	American	45	Killed while attempting to stop runaway trip.			Beaver Dam No. 2	Tuscarawas.
November	30	Arthur Kurtz	American	19	Killed by a fall of stone.			Egypt No. 1	Tuscarawas.
VINTON COUNTY.									
April	19	Rundy Ankrum	American	18	Killed by falling under car on tippie.			Mohr & Minton.	Vinton.
October	24	Bert Brennan	American	22	Killed by falling from cage.			Elk Fork	Vinton.
November	16	Peter Boyce	American	82	Killed by a premature explosion of dynamite.			Alma Cement	Vinton.
November	16	W. O. Ellis	American	30	Killed by a premature explosion of dynamite.			Alma Cement	Vinton.

SERIOUS ACCIDENTS.

Date.	Name.	Nationality	Age	Character of Injury.	Cause of Accident.	Name of Mine.	County.
1904.							
Jan. 4	Lee Cable	American	33	Leg broken.	Fall of slate.	Doanville	Athens.
Jan. 21	Peter Curran	Irish	23	Leg fractured.	Foot caught in spreader, causing him to fall under mine car.	New Pittsburg No. 5.	Athens.
Jan. 23	Clyde Craig	American	20	Three ribs broken and injured internally.	Falling in front of loaded car.	No. 281	Athens.
Jan. 25	Jas. Cavanaugh	American	36	Ribs broken.	Fall of coal and slate.	No. 285	Athens.
Feb. 3	Albert Harrold	American	24	Foot broken.	Run over by trip.	Shaffer	Athens.
Feb. 12	A. S. Davis	American	25	Leg injured.	Coal falling down shaft.	No. 2	Athens.
Feb. 18	Thos. Winning	Scotch	49	Foot injured.	Fall of coal.	Luhrig No. 2	Athens.
Feb. 18	Jonas McNabb	American	25	Arm broken.	Mine car jumping the track.	Shaffer	Athens.
Feb. 29	Hugh Sale	Colored	22	Spine injured.	Fall of slate.	Kimberly	Athens.
Mch. 3	John Pidcock	American	36	Two fingers taken off.	Lump coal falling down shaft.	Luhrig No. 1.	Athens.
Mch. 7	George McBryde	American	53	Ribs broken and scalp wounded seriously.	Fall of slate.	Luhrig No. 1.	Athens.
Mch. 19	John Blower	English	39	Injured seriously.	Car jumping the track at the bottom of shaft.	No. 23	Athens.
Mch. 25	Lance Bateman	American	28	Elbow dislocated and wrist fractured.	Falling from railway flat.	No. 5	Athens.
Apr. 14	George Murphy	American	21	Arm cut off.	Caught in gear wheel.	New Pittsburg No. 5.	Athens.
Apr. 21	Thomas Harshey	American	62	Leg broken.	Fall of coal.	No. 10	Athens.
Apr. 28	Harry Williams	American	17	Leg injured.	Caught between car and motor.	No. 256	Athens.
Apr. 29	Alex. Johnson	Finlander	25	Seriously burned.	Gas explosion.	No. 24	Athens.
May 13	Jos. Swindle	American	40	Hand injured.	Slipping and falling on a T rail.	McLeish	Athens.
July 8	John Robinson	American	51	Foot badly injured.	Mine car wheel.	Hisylvania	Athens.
July 28	Bennet Estep	American	45	Ankle injured.	Fall of slate.	McLeish	Athens.
July 31	Jesse McHenry	American	28	Leg broken.	Falling from mine car.	No. 5	Athens.
Aug. 2	E. Rognoskie	Polander	17	Arm broken.	Fall of roof.	No. 281	Athens.
Aug. 4	O. H. Dowler	American	23	Foot injured.	Mine car.	Winchester	Athens.
Aug. 19	Chas. Newman	American	28	Jaw bone broken.	Fall of slate.	No. 204	Athens.
Aug. 16	Lee Brooks	American	20	Hip and back injured.	Fall of draw-slate.	Phoenix No. 2.	Athens.
Aug. 20	Wm. Lee	American	17	Foot injured.	Caught by mine car.	New Pittsburg No. 4.	Athens.
Aug. 31	Wm. Wiley	American	40	Ankle broken.	Fall of slate.	Sedalia	Athens.
Aug. 31	Jos. McHenry	American	28	Leg broken.	Falling in front of mine car.	New Pittsburg No. 5.	Athens.
Sept. 27	Murray Sweeney	American	18	Arm and back bruised.	Falling from mine car.	Luhrig No. 1.	Athens.
Sept. 26	Robt. Hevener	American	20	Leg injured.	Fall of coal.	No. 254	Athens.
Oct. 8	Frank Ley	American	18	Foot seriously injured.	Fall of coal.	No. 24	Athens.
Oct. 12	Peter Gimm	American	18	Finger taken off.	Coupling mine cars.	Luhrig No. 1.	Athens.
Oct. 31	Wm. Wilper	American	28	Leg fractured and ankle sprained.	Repairing mining machine.	No. 252	Athens.
Nov. 14	Andrew Malaski	Polish	45	Body bruised.	Flying shot.	No. 24	Athens.
Nov. 17	Allen Albaugh	American	58	Foot mashed.	Fall of coal.	South Side No. 2.	Athens.
Nov. 22	J. C. Chapman	American	28	Foot bruised.	Mine car.	No. 24	Athens.
Nov. 24	Thos. Campbell	American	26	Body bruised.	Fall of coal.	Doanville	Athens.
Dec. 1	Jno. Cuthbertson	English	40	Leg cut.	Pick catching mining machine.	New Pittsburg No. 5.	Athens.

Dec. 3	J. L. Oliver	American	34	Painfully bruised.	Fall of slate.	No. 205	Athena.
Dec. 14	George Kostyo	Hungarian	64	Hips injured.	Fall of slate.	No. 206	Athena.
Dec. 19	Andrew Chute	American	20	Foot crushed.	Caught in frog.	No. 254	Athena.
Dec. 19	Newton Siddle	American	44	Arm broken.	Fall of coal.	South Side No. 2	Athena.
Dec. 20	Charles Betts	American	44	Finger taken off.	Spragging cars.	Carbondale No. 2	Athena.
1903.							
Nov. 10	Silas Conkle	American	43	Hip dislocated.	By fall of slate.	Pipe Creek	Belmont.
Nov. 27	John McGee	American	45	Ribs broken.	Motor car.	Empire No. 2	Belmont.
Dec. 5	Joe Killevanick	Polish	32	Leg broken.	Fall of slate.	Empire No. 6	Belmont.
Dec. 28	Vinson Pope	Hungarian	30	Arms, body and head cut.	Caught by haulage rope.	Barton	Belmont.
1904.							
Feb. 22	Joe Dadok	Slav	22	Collar bone and five ribs broken.	Caught between mine car and rib.	Empire No. 2	Belmont.
Feb. 24	Sherman Myers	American	31	Foot injured.	Caught in mining machine.	Crescent 24	Belmont.
Feb. 26	Frank Jennam	German	25	Leg broken.	Caught between car and rib.	Empire No. 2	Belmont.
Mch. 10	Frank Spindall	Austrian	40	Thumb and forefinger injured.	Mine car.	Wheeling Creek	Belmont.
Mch. 22	James Forte	Italian	25	Leg fractured.	Fall of slate.	Franklin	Belmont.
Mch. 29	W. A. Brown	American	25	Foot injured.	Caught between mine car and post.	Empire No. 6	Belmont.
Apr. 14	Ross Julien	Italian	30	Leg broken.	Caught between mine car and mule.		Belmont.
Apr. 19	Ino, Neavin	Irish	32	Arm broken.	Fall of stone.	Pipe Creek	Belmont.
Apr. 25	Levi Jones	American	40	Hip injured.	Fall of soapstone.	Laughlin	Belmont.
May 23	George Patterson	American	36	Face and collar bone broken.	Fall of soapstone.	Troll No. 1	Belmont.
May 23	Henry Peck	Bohemian	40	Stomach injured.	Caught between mine car and rib.	O. & W. Va.	Belmont.
June 1	Wm. Givens	American	20	Hand injured.	Caught between mine cars.	Troll No. 1	Belmont.
June 27	Grasse Fontanio	Italian	32	Finger cut.	Fall of stone.	Gaylord Hill	Belmont.
June 27	Wm. Overbaugh	American	25	Hand injured.	Mining machine.	Maple Standard	Belmont.
July 20	Ino, Kovarch	Polish	20	Leg broken.	Fall of coal.	Wheeling Creek	Belmont.
July 26	Shannon Seffell	American	33	Hip dislocated.	Caught between loaded mine cars.	Dellora No. 1	Belmont.
Aug. 4	Mark Polina	Slav	23	Leg injured.	Fall of coal.	Nail Mill	Belmont.
Aug. 23	Martin Lisk	Bohemian	41	Back fractured.	Fall of stone.	Wheeling Creek	Belmont.
Aug. 31	Lewis Lucas	American	19	Toe cut off.	Mine car.	Cochran	Belmont.
Sept. 7	Jos. Mettrigh	German	50	Head cut.	Fall of stone.	Wheeling Creek	Belmont.
Sept. 23	Alex Verish	Slav	85	Foot mashed.	Fall of stone.	Barton	Belmont.
Sept. 23	Charles Elk	American	35	Collar bone broken.	Fall of coal.	Black Diamond	Belmont.
Oct. 21	Scott Gardon	American	40	Foot injured.	Mine car.	Moore's Run	Belmont.
Oct. 21	Joe Vartola	Slav	32	Leg crushed.	Fall of stone.	Wheeling Creek	Belmont.
Oct. 27	Ino, Crosier	American	40	Leg broken.	Fall of slate.	Crozier	Belmont.
Oct. 27	Steve Hawart	Slav	24	Arm broken and head and body bruised.	Caught between coal cars.	Barton	Belmont.
Oct. 31	Jos. Korcove	Slav	28	Head cut and skull fractured.	Fall of stone.	Lansing No. 4	Belmont.
Nov. 3	Wm. McMasters	American	40	Leg injured.	Caught in machine.	Boggs	Belmont.
Nov. 7	Adam Larusky	Hungarian	26	Right hand injured.	Fall of stone.	Crescent 31	Belmont.
Nov. 11	Joe Darnbery	Polish	22	Back and side injured.	Fall of stone.	Troll No. 1	Belmont.
Nov. 28	Wm. Marling	American	22	Thumb cut.	By an ax.	Nail Mill	Belmont.
Nov. 28	Charles Fowler	American	32	Side and hips injured.	Fall of stone.	Laughlin	Belmont.
Dec. 1	Joseph Lonella	Italian	27	Face and hand burned.	Igniting powder.	Dellora No. 1	Belmont.
Dec. 2	Romeo Spaziani	Italian	36	Leg broken.	Fall of slate.	Black Oak	Belmont.
Dec. 7	David Lucas	American	40	Head and face injured.	Fall of coal.	Glen	Belmont.

SERIOUS ACCIDENTS — Continued.

Date.	Name.	Nationality	Age	Character of Injury.	Cause of Accident.	Name of Mine.	County.
Dec. 13	Herman Rowe	American	21	Leg broken.	Jumping off car.	Schicks	Belmont.
Dec. 13	Jas. Busley	American	38	Collar bone and shoulder bone broken.	Caught between car and rib.	Barton	Belmont.
Dec. 27	Albert Holliday	American	19	Foot injured.	Caught between mine cars.	Maple Hill	Belmont.
Jan. 11	Geo. Kelley	Irish	73	Hand crushed.	Fall of coal.	Deveny & Kirk	Carroll.
Feb. 9	Frank George	Italian	35	Leg broken.	Standing shot.	Huffs Run	Carroll.
Feb. 16	Henry Finberger	German	26	Leg injured.	Machine bar running through it.	Magnolia	Carroll.
Oct. 13	Harry Jones	American	19	Leg broken.	Caught between car bumpers.	Huff Run	Carroll.
Feb. 8	Mike Gallagher	Irish	32	Foot injured.	Caught between motor cars.	Slope	Columbiana.
May 13	Geo. Sutherland	American	34	Arm injured.	Fall of slate.	Leetonia	Columbiana.
July 23	Harry Taggart	American	30	Seriously injured.	Fall of slate.	New Shaft	Columbiana.
July 28	Patrick Colgan	Scotch	45	Leg broken.	Fall of coal.	Lisbon	Columbiana.
Nov. 1	George Howard	American	40	Leg broken.	Fall of rock.	Conesville No. 4	Coshocton.
Feb. 1	Oliver Channell	American	41	Hips and stomach injured.	Caught between motor and rib.	No. 2	Coshocton.
Dec. 10	Richard Turnell	American	40	Leg and ankle injured.	Fall of roof.	No. 2	Coshocton.
Dec. 17	Herbert Blenkinskip	American	28	Leg broken.	Fall of soapstone.	Swan Creek	Gallia.
1903.							
Nov. 25	Geo. Yonosik	Slav	26	Back injured.	Fall of draw-slate.	Blue Bell	Guernsey.
Dec. 15	James Foster	American	56	Seriously injured.	Fall of screen.	Murray Hill	Guernsey.
Dec. 28	John Luchanski	Slav	29	Leg injured.	Fall of coal.	Trail Run	Guernsey.
Dec. 29	James R. Shalto	American	35	Ankle sprained.	Fall of slate.	Klondike	Guernsey.
1904.							
Jan. 2	Geo. McCully	American	26	Back injured.	Fall of slate.	Kings	Guernsey.
Jan. 12	Geo. Moffit	American	25	Hand injured.	Tail chain.	Klondike	Guernsey.
Jan. 14	Wm. Hinchelliff	American	19	Leg and shoulder injured.	Mine car.	Cleveland	Guernsey.
Jan. 29	Steven Balus	Slav	45	Back injured.	Fall from cage.	Kings	Guernsey.
Feb. 9	Peter Pushgar	Slav	30	Feet and arm bruised.	Fall of slate.	Blue Bell	Guernsey.
Feb. 16	Joe Dissout	Slav	38	Side and face injured.	Fall of coal.	Little Kate	Guernsey.
Feb. 18	Paul Elgech	Slav	36	Back and breast injured.	Fall of slate.	Ideal	Guernsey.
Feb. 19	Alex Deliska	Slav	28	Leg injured.	Kicked by mule.	Blue Bell	Guernsey.
Feb. 24	Cass Howell	American	19	Seriously injured.	Loaded mine car.	Walhousing	Guernsey.
Mar. 2	Norman Grosse	American	19	Leg broken.	Fall of coal.	Nicholson	Guernsey.
Mar. 4	Geo. Voitko	Slav	20	Head injured.	Caught between mine car and roof.	Ideal	Guernsey.
Mar. 24	Robert Farrow	American	54	Hands and face burned.	Explosion of gas.	Cleveland No. 1	Guernsey.
Mar. 24	George Williams	English	45	Hands and face burned.	Explosion of gas.	Cleveland No. 1	Guernsey.
Mar. 24	Geo. Kirbright	English	42	Hands and face burned.	Explosion of gas.	Cleveland No. 1	Guernsey.
Mar. 24	Wm. Christopher	English	30	Hands and face burned.	Explosion of gas.	Cleveland No. 1	Guernsey.
Mar. 24	Wm. Shreass	English	40	Hands and face burned.	Explosion of gas.	Cleveland No. 1	Guernsey.
Mar. 24	Andy Gadus	Slav	24	Hands and face burned.	Explosion of gas.	Cleveland No. 1	Guernsey.
Apr. 20	Geo. Patrick	Slav	40	Finger taken off.	Caught between mine car and post.	Ideal	Guernsey.
May 6	Geo. Saby	Hungarian	38	Leg broken.	Fall of timber.	Little Kate	Guernsey.

May	13	Irish Litanaler	American	30	Finger taken off.	Mining machine.	Ideal	Guernsey.
May	14	Paul Zimjik	Slav	25	Leg broken.	Fall of slate.	Detroit	Guernsey.
May	20	Joe Smitley	American	31	Back injured.	Fall of slate.	Kings Run	Guernsey.
May	25	Matthew Fairhurst	English	44	Kills broken.	Fall of coal.	Trail	Guernsey.
May	28	Ed. Allendar	American	24	Arms and foot injured.	Mine cars.	Old Orchard	Guernsey.
June	1	Geo. Martineau	Slav	30	Back injured.	Fall of rock.	Kings	Guernsey.
June	16	Benj. Ellis	American	51	Hand crushed.	Caught between car and door.	Detroit	Guernsey.
June	17	Paul Wycoff	American	30	Arm broken.	Falling from mine car.	Hartford	Guernsey.
June	21	Saul Salts	American	30	Finger taken off.	Caught in cogwheel of an electric drill.	Blue Bell	Guernsey.
June	21	Carry McCollum	American	56	Ankle dislocated.	Derailing a machine truck.	Old Orchard	Guernsey.
July	7	Jas. Washington	American	32	Arm fractured and back injured.	Fall of draw-slate.	Imperial	Guernsey.
July	11	Walter Smith	American	32	Two fingers taken off.	Caught in cage.	Old Orchard	Guernsey.
July	11	Leonard Teel	American	25	Seriously injured.	Mine car.	Detroit	Guernsey.
Aug.	2	Geo. Haron	Slav	21	Arm broken.	Lumping from car.	Detroit	Guernsey.
Aug.	10	Edw. Humphrey	American	53	Leg broken.	Fall of slate.	Detroit	Guernsey.
Aug.	10	Ed. McInlong	American	30	Leg seriously injured.	Fall of coal.	Detroit	Guernsey.
Aug.	11	Tony Barnett	Austrian	33	Leg broken.	Mine car.	Central	Guernsey.
Aug.	16	Franklin Christian	American	53	Foot injured.	By an ax.	Central	Guernsey.
Aug.	17	Jake Scott	American	27	Arm broken.	Caught by mine car.	Central	Guernsey.
Aug.	25	Wm. Poland	American	25	Foot mashed.	Caught between car bumpers.	Old Orchard	Guernsey.
Sept.	7	Wm. Lee	American	22	Arm broken.	Caught between car and roof.	Trail Run	Guernsey.
Sept.	8	Geo. Beris	Slav	41	Leg broken.	Fall of slate.	Black Top	Guernsey.
Sept.	14	Y. Sigman	American	32	Hand injured.	Caught between car and chain.	Ideal	Guernsey.
Oct.	5	John Christian	American	28	Seriously injured.	Caught between car and cross-bar.	Old Orchard	Guernsey.
Oct.	5	James Reynolds	American	23	Leg injured.	Motors colliding.	Forsythe	Guernsey.
Oct.	7	Earl Gear	American	23	Hip injured.	Motors colliding.	Black Top	Guernsey.
Oct.	17	Warren Peters	American	26	Legs broken.	Taking cars off cage.	Ideal	Guernsey.
Oct.	19	Frank Newman	American	26	Hip bruised.	Fall of coal.	Ideal	Guernsey.
Oct.	20	Joe Repasky	Slav	23	Hand injured.	Caught by mine car.	Trail Run	Guernsey.
Oct.	28	Robert Love	Scotch	37	Hips and legs injured.	Fall of slate.	Ideal	Guernsey.
Nov.	3	Geo. Chenniz	Slav	46	Skull fractured.	Fall of slate.	Ideal	Guernsey.
Nov.	7	Wm. Tucker	American	40	Leg broken.	Fall of stone.	Old Orchard	Guernsey.
Nov.	30	Peter Corley	Austrian	48	Head and shoulder injured.	Fall of slate.	Detroit	Guernsey.
Dec.	3	John Marcus	Slav	30	Ankle sprained.	Fall of slate.	Guernsey	Guernsey.
Dec.	6	Steve Douglas	Slav	35	Small bone broken.	Fall of slate.	Detroit	Guernsey.
Dec.	10	Geo. Goldburn	American	42	Leg broken.	Fall of coal.	Ideal	Guernsey.
Dec.	12	John Sajek	Slav	33	Leg and foot bruised.	Fall of slate.	Ideal	Guernsey.
Dec.	16	Oscar Shearer	American	17	Head cut and leg sprained.	Fall of slate.	Cleveland	Guernsey.
Dec.	23	Roy Watson	American	19	Hand injured.	Caught between mine cars.	Trail Run	Guernsey.
1903.	Nov. 24	Joe Jerushia	Hungarian	28	Back and legs injured.	Fall of slate.	Adena No. 1.	Harrison.
1904.	Mch. 18	Steve Sarco	Hungarian	36	Hips and body bruised.	Fall of slate.	Adena No. 1.	Harrison.
Apr.	18	Joe Kosch	Hungarian	28	Foot injured.	Fall of slate.	Adena No. 1.	Harrison.
Apr.	26	Joe Holage	Hungarian	41	Leg broken.	Fall of slate.	Adena No. 1.	Harrison.
June	12	Joe Trator	Austrian	24	Head and leg cut.	Fall of stone.	Adena No. 1.	Harrison.
June	23	Lucian Alsall	Italian	21	Collar bone broken.	Caught between mine car and rib.	Adena No. 1.	Harrison.

SERIOUS ACCIDENTS — Continued.

Date.	Name.	Nationality	Age	Character of Injury.	Cause of Accident.	Name of Mine.	County.
Dec. 13	Herman Rowe	American	21	Leg broken	Jumping off car.	Schicks	Belmont.
Dec. 13	Jas. Bosley	American	38	Collar bone and shoulder bone broken.	Caught between car and rib.	Harton	Belmont.
Dec. 27	Albert Holliday	American	19	Foot injured.	Caught between mine cars.	Maple Hill	Belmont.
Jan. 11	Jno. Kelley	Irish	73	Hand crushed.	Fall of coal.	Deveny & Kirk	Carroll.
Feb. 9	Frank George	Italian	35	Leg broken.	Standing shot.	Huffs Run	Carroll.
Feb. 16	Henry Epinberger	German	26	Leg injured.	Machine bar running through it.	Magnolia	Carroll.
Oct. 13	Harry Jones	American	19	Leg broken.	Caught between car bumpers.	Huff Run	Carroll.
Feb. 8	Mike Gallagher	Irish	32	Foot injured.	Caught between motor cars.	Slope	Columbiana.
May 13	Jno. Sutherin	American	34	Arm injured.	Fall of slate.	Lectonia	Columbiana.
July 23	Harry Taggart	American	30	Seriously injured.	Fall of slate.	New Shaft	Columbiana.
July 28	Patrick Colgan	Scotch	45	Leg broken.	Fall of slate.	Lisbon	Columbiana.
Nov. 1	George Howard	American	40	Leg broken.	Fall of rock.	Conesville No. 4.	Columbiana.
Feb. 1	Oliver Channell	American	30	Hips and stomach injured.	Caught between motor and rib.	No. 2	Coshocton.
Dec. 10	Richard Turnell	American	41	Leg and ankle injured.	Fall of roof.	No. 2	Coshocton.
June 17	Herbert Blenkinskip	American	23	Leg broken.	Fall of soapstone.	Swan Creek	Gallia.
1903.							
Nov. 23	Jno. Yonosik	Slav	36	Back injured.	Fall of draw-slate.	Blue Bell	Guernsey.
Dec. 15	James Foster	American	56	Seriously injured.	Fall of screen.	Murray Hill	Guernsey.
Dec. 28	John Luchanski	Slav	29	Leg injured.	Fall of coal.	Trail Run	Guernsey.
Dec. 29	James R. Shalto	American	35	Ankle sprained.	Fall of slate.	Klondike	Guernsey.
1904.							
Jan. 2	Jno. McCully	American	26	Back injured.	Fall of slate.	Kings	Guernsey.
Jan. 12	Jno. Moffit	American	25	Hand injured.	Tail chain.	Klondike	Guernsey.
Jan. 14	Wm. Hinchcliff	American	19	Leg and shoulder injured.	Mine car.	Cleveland	Guernsey.
Jan. 29	Steven Balus	Slav	45	Back injured.	Fall from cage.	Kings	Guernsey.
Feb. 9	Peter Pusgar	Slav	30	Feet and arm bruised.	Fall of slate.	Blue Bell	Guernsey.
Feb. 16	Joe Dissount	Slav	38	Side and face injured.	Fall of slate.	Little Kate	Guernsey.
Feb. 18	Paul Elgech	Slav	36	Back and breast injured.	Fall of slate.	Ideal	Guernsey.
Feb. 24	Alex Deliska	Slav	23	Leg injured.	Kicked by mule.	Blue Bell	Guernsey.
Feb. 24	Cass Howell	American	19	Seriously injured.	Loaded mine car.	Walhounding	Guernsey.
Mch. 2	Norman Grosse	American	20	Leg broken.	Fall of coal.	Nicholson	Guernsey.
Mch. 4	Jno. Voitko	Slav	19	Head injured.	Caught between mine car and roof.	Ideal	Guernsey.
Mch. 24	Robert Farrow	American	54	Hands and face burned.	Explosion of gas.	Cleveland No. 1.	Guernsey.
Mch. 24	George Williams	English	45	Hands and face burned.	Explosion of gas.	Cleveland No. 1.	Guernsey.
Mch. 24	Jno. Kirthbright	English	42	Hands and face burned.	Explosion of gas.	Cleveland No. 1.	Guernsey.
Mch. 24	Wm. Christopher	English	30	Hands and face burned.	Explosion of gas.	Cleveland No. 1.	Guernsey.
Mch. 24	Wm. Shreas	English	40	Hands and face burned.	Explosion of gas.	Cleveland No. 1.	Guernsey.
Mch. 24	Andy Gadus	Slav	24	Hands and face burned.	Explosion of gas.	Cleveland No. 1.	Guernsey.
Apr. 29	Jno. Patrick	Slav	40	Finger taken off.	Caught between mine car and post.	Ideal	Guernsey.
May 5	Jno. Saly	Hungarian	38	Leg broken.	Fall of timber.	Little Kate	Guernsey.

May 13	Fitch Lintanster	American	30	Finger taken off.	Mining machine.	Ideal	Guernsey.
May 14	Paul Zinjik	Slav	25	Leg broken.	Fall of slate.	Detroit	Guernsey.
May 20	Ino. Smiley	American	31	Back injured.	Fall of slate.	Kings	Guernsey.
May 25	Matthew Fairhurst	English	44	Ribs broken.	Fall of coal.	Trail Run	Guernsey.
May 28	Ed. Allender	American	28	Arms and foot injured.	Mine cars.	Old Orchard	Guernsey.
June 1	Ino. Martineau	Slav	30	Back injured.	Fall of rock.	Kings	Guernsey.
June 16	Benj. Ellis	American	51	Hand crushed.	Caught between car and door.	Detroit	Guernsey.
June 17	Paul Wyckoff	American	20	Arm broken.	Falling from mine car.	Hartford	Guernsey.
June 17	Saul Salfs	American	30	Finger taken off.	Caught in cogwheel of an electric drill.	Blue Bell	Guernsey.
June 21	Carry McCollum	American	30	Ankle dislocated and back injured.	Derailing a machine truck.	Old Orchard	Guernsey.
June 21	Jas. Washington	American	56	Arm fractured and back injured.	Derailing a machine truck.	Old Orchard	Guernsey.
July 7	Walter Smith	American	32	Two fingers taken off.	Fall of draw-slate.	Imperial	Guernsey.
July 11	Leonard Teel	American	25	Seriously injured.	Mine car.	Detroit	Guernsey.
Aug. 2	Ino. Baron	Slav	26	Arm broken.	Lumping from car.	Detroit	Guernsey.
Aug. 10	Edw. Humphrey	American	53	Leg broken.	Fall of slate.	Detroit	Guernsey.
Aug. 10	H. McInlone	American	30	Leg seriously injured.	Fall of coal.	Detroit	Guernsey.
Aug. 11	Tony Barnett	Austrian	33	Leg broken.	Mine car.	Old Orchard	Guernsey.
Aug. 16	Franklin Christian	American	53	Foot injured.	By an ax.	Central	Guernsey.
Aug. 17	Lake Scott	American	27	Foot injured.	Caught by mine car.	Central	Guernsey.
Aug. 25	Wm. Poland	American	25	Foot mashed.	Caught between car and roof.	Old Orchard	Guernsey.
Sept. 7	Wm. Lee	American	22	Arm broken.	Caught between car and roof.	Trail Run	Guernsey.
Sept. 8	Ino. Beris	Slav	41	Leg broken.	Fall of slate.	Black Top	Guernsey.
Sept. 14	Sigman	American	32	Hand injured.	Caught between car and chain.	Old Orchard	Guernsey.
Oct. 5	Ino. Christian	American	28	Seriously injured.	Caught between car and cross-bar.	Ideal	Guernsey.
Oct. 5	John Jones	American	21	Leg injured.	Motors colliding.	Forsythe	Guernsey.
Oct. 7	James Reynolds	American	23	Hip injured.	Motors colliding.	Black Top	Guernsey.
Oct. 7	Earl Grear	American	21	Legs broken.	Taking cars off cage.	Ideal	Guernsey.
Oct. 17	Warren Peters	American	26	Hip bruised.	Fall of coal.	Ideal	Guernsey.
Oct. 19	Frank Newman	American	23	Arm injured.	Caught between car and roof.	Trail Run	Guernsey.
Oct. 20	Joe Reinsky	Slav	23	Hand injured.	Caught by mine car.	Ideal	Guernsey.
Oct. 28	Robert Love	Scotch	47	Back and hips injured.	Fall of slate.	Ideal	Guernsey.
Nov. 3	Ino. Chernis	Slav	37	Hips bruised.	Fall of slate.	Ideal	Guernsey.
Nov. 7	Geo. Tucker	American	46	Pack and leg injured.	Fall of stone.	Old Orchard	Guernsey.
Nov. 20	Peter Cortley	Austrian	48	Leg broken.	Fall of stone.	Detroit	Guernsey.
Dec. 3	John Marcus	Slav	20	Head and shoulder injured.	Fall of slate.	Guernsey	Guernsey.
Dec. 6	Steve Douglas	Slav	35	Ankle sprained.	Fall of slate.	Detroit	Guernsey.
Dec. 10	Bascom Watson	American	32	Small bone broken.	Fall of coal.	Ideal	Guernsey.
Dec. 12	Geo. Goldburn	American	42	Leg broken.	Fall of slate.	Ideal	Guernsey.
Dec. 16	John Sajek	Slav	33	Leg and foot bruised.	Fall of slate.	Ideal	Guernsey.
Dec. 16	Oscar Shearer	American	17	Head cut and leg sprained.	Fall of slate.	Cleveland	Guernsey.
Dec. 23	Roy Watson	American	18	Hand injured.	Caught between mine cars.	Trail Run	Guernsey.
1903.							
Nov. 24	Joe Jerushia	Hungarian	28	Back and legs injured.	Fall of slate.	Adena No. 1	Harrison.
1904.							
Mich. 18	Steve Sarco	Hungarian	36	Hips and body bruised.	Fall of slate.	Adena No. 1	Harrison.
Apr. 18	Joe Konsh	Hungarian	28	Foot injured.	Fall of slate.	Adena No. 1	Harrison.
Apr. 28	Joe Holake	Hungarian	41	Leg broken.	Fall of slate.	Adena No. 1	Harrison.
June 19	Joe. Traton	Austrian	24	Head and leg cut.	Fall of stone.	Adena No. 1	Harrison.
June 23	Lucian Alsall	Italian	21	Collar bone broken.	Caught between mine car and rib.	Adena No. 1	Harrison.

SERIOUS ACCIDENTS—Continued.

Date.	Name.	Nationality	Age	Character of Injury.	Cause of Accident.	Name of Mine.	County.
Aug. 29	Kostanlie Vashorick.	Polish	25	Back bruised.	Fall of stone.	Adena No. 1.	Harrison.
Aug. 30	Chas. White	American	20	Jaw bone broken.	Caught between car and roof.	Adena No. 1.	Harrison.
Sept. 7	Andy Kopechik	Russian	35	Head and arm bruised.	Fall of slate.	Adena No. 1.	Harrison.
Nov. 18	Jas. Fitzgerald	American	18	Hip injured.	Caught between mine car and rib.	Adena	Harrison.
Dec. 19	Jno. Sidder	Polish	30	Fingers crushed.	Coupling cars.	Adena	Harrison.
1903.							
Nov. 20	Nelson Pierson	American	52	Leg broken.	Fall of slate.	New Pittsburgh No. 2.	Hocking.
Dec. 24	Otha Clademing	American	20	Seriously injured.	Caught between car and cross-timber	Cawthorn No. 6.	Hocking.
1904.							
Feb. 1	Jno. Dyson	American	50	Seriously injured.	By trip rope.	New Pittsburgh No. 1.	Hocking.
Mar. 9	Finley Hurd	American	28	Leg broken.	Fall of slate.	No. 208	Hocking.
May 16	Jno. Howard	Colored	34	Eyes injured.	Steel from driving machine.	New Pittsburgh No. 6.	Hocking.
June 13	Jno. Campbell	German	62	Leg injured.	Stepped on by mule.	New Pittsburgh No. 1.	Hocking.
June 16	Wm. Veron	American	26	Leg broken.	Machine bar.	New Pittsburgh No. 3.	Hocking.
Aug. 4	Jno. Crawford	American	49	Ankle fractured.	Fall of slate.	Snake Hollow	Hocking.
Aug. 26	Clyde Holmes	American	40	Foot injured.	Mining machine.	Jobs No. 1.	Hocking.
Sept. 19	Wm. Reed	American	35	Ankle and rib broken.	Fall of slate.	Jobs No. 3.	Hocking.
Oct. 14	G. W. Jewett	English	58	Leg broken.	Fall of slate.	New Pittsburgh No. 7.	Hocking.
Nov. 4	Fred Webb	American	23	Muscles of leg and toe injured.	Fall of slate.	Jobs No. 2.	Hocking.
Nov. 5	Walter Jones	American	18	Hips injured.	Mine cars falling on it.	Jobs No. 2.	Hocking.
Nov. 19	Edon Lemmons	American	40	Head and shoulder bruised.	Caught by mine cars.	No. 207	Hocking.
Nov. 21	Eley Neal	American	47	Arm broken.	Fall of slate.	No. 202	Hocking.
Nov. 21	Frank Spencer	American	35	Finger crushed.	Mining machine.	No. 202	Hocking.
1905.							
Nov. 20	Monzo Duskey	American	45	Leg and seven ribs broken.	Fall of slate.	Standard	Jackson.
Nov. 23	Wm. Shultz	American	35	Leg broken.	Fall of slate.	Milton No. 3.	Jackson.
Dec. 7	Lewis Stotts	American	20	Leg broken.	Mining machine.	Acorn	Jackson.
Dec. 21	Fred Stroth	American	47	Ribs broken.	Premature explosion.	Superior No. 8.	Jackson.
1906.							
Jan. 5	Pearl Patton	American	22	Jaw broken.	Kicked by mule.	Grace	Jackson.
Jan. 11	Marion Downard	American	48	Ankle broken.	Fall of slate.	Fluhart No. 3.	Jackson.
Jan. 14	Wm. Ilag	American	30	Back and hips injured.	Fall of slate.	Star No. 4.	Jackson.
Jan. 18	John May	American	27	Back sprained.	Fall of slate.	Superior No. 8.	Jackson.
Feb. 24	Thurman Griffith	American	28	Face, body and arm burned.	Explosion of powder.	Mattox	Jackson.
Feb. 24	Fred Harrison	American	18	Face, body and arm burned.	Explosion of powder.	Mattox	Jackson.

Mch.	13	S. E. May	American	45	Ribs broken.	Fall of posts.	Superior No. 1.	Jackson.
Mch.	23	Wm. Copas	American	23	Leg injured.	Falling from mine cars.	Superior No. 8.	Jackson.
May	16	Hall Melvin	American	51	Foot injured.	Fall of draw-slate.	Milton No. 3.	Jackson.
July	12	Andy Sharp	American	51	Hip injured.	Fall of slate.	Superior No. 4.	Jackson.
Aug.	17	Wm. Eisinger	American	27	Foot mangled.	Mine car jumping track.	Superior No. 8.	Jackson.
Aug.	17	Henry Booth	American	51	Foot injured.	Fall of draw-slate.	Fluhart No. 1.	Jackson.
Aug.	23	Elza Goodrich	American	26	Foot injured.	Mine car jumping track.	Superior No. 9.	Jackson.
Sept.	20	Yno. Malloy	American	24	Seriously injured.	Premature explosion.	Superior No. 8.	Jackson.
Sept.	20	Yno. Linkey	Irish	23	Back injured.	Fall of slate.	Northern	Jackson.
Sept.	26	Walter Brady	American	23	Back injured.	Mine car jumping track.	Superior No. 8.	Jackson.
Sept.	26	James Collins	American	15	Seriously burned face and back.			
Oct.	5	Ben Walton	American	59	Back sprained.	Gas.	Fluhart No. 3.	Jackson.
Oct.	10	Yno. Thompson	American	23	Seriously injured.	Fall of draw-slate.	Fluhart No. 3.	Jackson.
Oct.	14	Wm. Thompson	American	23	Back injured.	Fall of slate.	Davis of O. H.	Jackson.
Oct.	24	Robert Shannell	American	47	Back injured.	Fall of slate.	Milton No. 4.	Jackson.
Oct.	24	Charles Choate	American	41	Ribs fractured.	Falling.	Tom Corwin No. 1.	Jackson.
Nov.	12	Charles Jones	African	30	Foot injured.	Caught between mine cars.	Superior No. 10.	Jackson.
Nov.	12	Wm. Parker	American	23	Head and arms burned.	Premature explosion of powder.	Acorn No. 2.	Jackson.
Dec.	3	Ike Parker	American	23	Head and arms burned.	Premature explosion of powder.	Emma No. 2.	Jackson.
Dec.	7	Ace Thompson	American	35	Hip and side injured.	Fall of coal.	Milton No. 3.	Jackson.
1903.								
Nov.	28	Robert Nichols	American	28	Hand injured.	Caught between car and roof.	Long Run	Jefferson.
Dec.	3	Daniel Yon	Italian	45	Leg bruised.	Fall of soapstone.	Conner No. 1.	Jefferson.
Dec.	10	Pasco Morell	Italian	40	Seriously injured.	Fall of slate and posts.	Conner No. 1.	Jefferson.
Dec.	10	John Harrogas	Hungarian	32	Leg broken.	Caught between bumper and car.	Ramsey No. 3.	Jefferson.
1904.								
Feb.	2	Peter Dragan	Russian	23	Leg broken.	Fall of slate.	Conner No. 1.	Jefferson.
Feb.	6	Frank Sokel	Polish	22	Foot injured.	Caught between mine cars.	Long Run	Jefferson.
Feb.	25	Louis Murie	American	19	Foot crushed.	Cutting machine.	Long Run	Jefferson.
Feb.	27	Mike Dudash	Hungarian	22	Leg broken.	Caught between mine cars.	Morris & Post	Jefferson.
Feb.	28	Earl Ford	American	16	Face injured.	Thrown from mine car.	Jefferson No. 2.	Jefferson.
Feb.	28	Wm. Merkle	American	32	Seriously injured.	Fall of stone.	Kelley	Jefferson.
Feb.	29	Mike Vuvonish	Slav	42	Arm and leg injured.	Fall of stone.	Herrick	Jefferson.
Feb.	29	W. N. Byassee	American	23	Seriously injured.	Caught between car and coal.	Jefferson No. 1.	Jefferson.
Feb.	31	Joe Santrel	Italian	24	Hip dislocated and lip cut.	Fall of slate.	Jefferson No. 1.	Jefferson.
Mar.	11	F. Zorzi	Hungarian	33	Seriously injured.	Fall of coal.	McFayden	Jefferson.
Mar.	11	Michael Zuski	Hungarian	33	Shoulder and back injured.	Fall of stone.	Edgar No. 1.	Jefferson.
June	20	Thos. Starlet	Italian	33	Leg broken.	Fall of post.	Rush Run	Jefferson.
July	2	Steve Bessei	Slav	23	Hip injured.	Fall of slate.	Conner No. 1.	Jefferson.
July	9	Yno. Janco	English	24	Back injured.	Fall of post.	Rush Run	Jefferson.
Aug.	22	Wm. Fithen	English	40	Leg broken.	Mine car.	Conner No. 1.	Jefferson.
Sept.	8	Yno. Wright	American	28	Ribs broken.	Caught by car and mule.	Rush Run	Jefferson.
Sept.	19	Andy Pecho	Polander	29	Leg broken.	Fall of soapstone.	Amsterdam	Jefferson.
Sept.	28	Nick Caple	Italian	24	Hands and face burned.	Explosion of powder.	Conners No. 1.	Jefferson.
Sept.	29	Lewis Marvovich	Slav	26	Hips dislocated.	Fall of stone.	Ramsey	Jefferson.
Oct.	11	John Hawiller	Slav	23	Leg injured.	Mining machine.	O'Neil	Jefferson.
Oct.	14	Frank Pupil	Italian	31	Legs and feet injured.	Struck by trip of cars.	Jefferson No. 2.	Jefferson.
Oct.	14	Mike Maggar	Hungarian	22	Leg broken.	Fall of soapstone.	Edgar No. 1.	Jefferson.
Oct.	15	Walter Kelwiski	Polish	30	Leg broken.	Fall of slate.	Amsterdam	Jefferson.
Oct.	23	John Hudoc	Slav	30	Seriously injured.	Explosion of powder.	Plum Run No. 4.	Jefferson.

SERIOUS ACCIDENTS — Continued.

Date.	Name.	Nationality	Age	Character of Injury.	Cause of Accident.	Name of Mine.	County.
Oct. 28	Earl Ford	American	17	Hip injured.	Caught by motor.	Jefferson No. 2.	Jefferson.
Nov. 7	Ray Yost	American	21	Leg bruised.	Mine cars.	Piney Fork No. 2.	Jefferson.
Nov. 28	Alex. Sinchock	Russian	20	Toes mashed.	Mining machine.	Edgar No. 2.	Jefferson.
Dec. 3	Steve Mulier	Hungarian	30	Back sprained.	Fall of slate.	Rush Run	Jefferson.
Dec. 21	Samuel Green	English	27	Shoulder strained.	Caught between mine car and rib.	Rush Run	Jefferson.
1903.							
Nov. 30	Ozias Clarkson	American	24	Ankle broken.	Mine car jumping track.	Clarion No. 5.	Lawrence.
Dec. 9	West Fields	American	48	Foot crushed.	Fall of slate.	Cobb	Lawrence.
1904.							
Mch. 8	Dave Gossman	German	66	Body and head bruised.	Fall of slate.	Kelley	Lawrence.
Sept. 21	Ervin Strumbo	American	55	Seriously injured.	Fall of slate.	Kingery	Lawrence.
Sept. 23	Arch Addis	American	26	Foot crushed.	Mine car jumping track.	Black Fork No. 4.	Lawrence.
Oct. 19	Lawson Watson	American	28	Arm broken and chest injured.	Fall of limestone.	Black Fork No. 5.	Lawrence.
Nov. 15	Wm. Kelley	American	45	Head and body bruised.	Fall of coal.	Kelley	Lawrence.
July 10	Fred Weikert	American	27	Rib broken.	Fall of slate.	Fairview	Mahoning.
Oct. 19	Geo. Rousch	American	49	Face and eye injured.	Fall of slate.	Rolling Mill	Meigs.
Feb. 18	Al Stone	American	37	Leg taken off.	Caught in mining machine.	Tropic	Morgan.
Feb. 10	Charles McPeak	American	38	Leg fractured.	Drawing posts.	Cadillac	Muskingum.
Feb. 21	Thomas Hickman	American	59	Back and leg injured.	Fall of bone coal.	No. 10	Muskingum.
Feb. 2	Wm. Bratton	American	35	Hands and face burned.	Blasting coal.	Peacock No. 2.	Muskingum.
Mch. 5	Robert Olden	American	37	Leg injured.	Caught between mine cars.	Cadillac	Muskingum.
July 15	Walter Anders	English	19	Foot injured.	Mine cars.	No. 37	Muskingum.
Dec. 12	Jno. Smallwood	American	24	Leg broken.	Fall of coal.	Noble	Noble.
1903.							
Nov. 20	Fred Reed	American	18	Two fingers crushed.	Caught between mine cars.	New Crescent	Perry.
1904.							
Jan. 12	John Baker	Colored	38	Collar bone and three ribs broken.	Premature explosion.	No. 268	Perry.
Jan. 19	George Brunton	Scotch	36	Ribs fractured.	Caught between motor and timber.	Reech Grove	Perry.
Feb. 1	Arthur White	American	21	Hip dislocated.	Fall of slate.	No. 37	Perry.
Feb. 8	Harry Thomas	American	20	Arm broken.	Caught between car and roof.	No. 821	Perry.
Mch. 14	Lewis Reed	American	31	Two ribs broken.	Mine cars jumping track.	Crescent	Perry.
Mch. 15	John Price	American	18	Ankle injured.	Taking loose coal.	Rock Run No. 3.	Perry.
Mch. 31	Griff Russell	American	20	Arm broken.	Caught between car and roof.	Lyonsdale	Perry.
Apr. 2	Jerry Cresler	American	62	Foot injured.	Fall of draw-slate.	Crescent	Perry.
Apr. 23	Robert Smith	American	43	Leg broken.	Fall of coal.	East Side No. 9.	Perry.
May 10	Steven Mady	Hungarian	35	Leg injured.	Caught between car bumpers.	No. 20	Perry.

June 23	J. K. Ballard	American	63	Head and shoulders injured	Fall of slate	Lyonsdale	Perry
Aug. 26	Edw. Thomas	American	17	Leg broken	Fall of slate	20th Century	Perry
Sept. 21	S. W. Kinder	American	20	Arm broken	Caught between car and roof	No. 321	Perry
Oct. 3	J. Baxter	Scottish	45	Hip dislocated	Fall of draw-slate	No. 20	Perry
Oct. 18	Geo. Edley	American	48	Foot taken off	Caught by a machine chain	Huckeye No. 5	Perry
Oct. 20	Jno. Kovach	Hungarian	21	Ankle and back injured	Fall of slate	No. 9	Perry
Nov. 11	Andy Charkie	Hungarian	25	Back sprained and toe broken	Fall of slate	Pedlow	Perry
Nov. 14	Oscar Hammond	American	38	Leg and ankle injured	Fall of rock	Chestnut Ridge No. 2	Perry
Dec. 8	John Kyster	American	26	Arm broken	Fall of bone coal	Valley No. 6	Perry
Mch. 11	Jos. Jones	Scottish	80	Back injured	Fall of coal	Deerfield	Portage
Nov. 3	Frank Shagnot	French	55	Hip dislocated	Fall of slate	Hutson No. 7	Portage
Dec. 9	Jas. D. Davis	Welsh	38	Ribs fractured	Fall of coal	Deerfield	Portage
1903.							
Dec. 14	John Davis	Welsh	38	Seriously injured	Mine cars	Pigeon Run	Stark
Dec. 17	Jesse Hullinger	American	37	Back and hips injured	Fall of slate	Massillon No. 7	Stark
1904.							
Feb. 15	David Davis	Welsh	63	Head and arms injured	Fall of coal	No. 5	Stark
Feb. 23	Jenkin Jones	Welsh	20	Knee injured	Fall of slate	No. 5	Stark
Feb. 23	Roy Scott	American	23	Knee injured	Fall of stone	No. 5	Stark
Feb. 23	Frank McGinnis	Irish	26	Collar bone broken	Fall of stone	No. 5	Stark
Mch. 23	Jno. Whitman	German	72	Leg broken	Caught between door and car	No. 15	Stark
Apr. 5	Mordica Davis	Welsh	46	Leg and hands injured	Premature explosion	Brookfield	Stark
May 9	Emil Peinasetti	Italian	38	Leg injured	Fall of coal	Elm Run No. 4	Stark
May 16	Wm. Clew	German	32	Leg broken	Mine car jumping the track	Hip	Stark
May 25	Arthur Bailey	American	20	Foot injured	Fall of shale	McGinty	Stark
May 26	Mike Christman	American	20	Foot injured	Fall of coal	Elm Run No. 4	Stark
June 7	Jno. Rowe	American	29	Arm bruised	Fall of slate	Massillon No. 1	Stark
July 21	Jno. Mantz	Italian	25	Arm broken	Fall of rock	No. 3	Stark
Aug. 16	Phillip Minor	German	26	Back and leg injured	Fall of draw-slate	No. 16	Stark
Sept. 15	George Bauman	German	35	Ribs fractured and side injured	Fall of draw-slate	No. 15	Stark
Oct. 25	Edwin Smith	German	27	Seriously injured	Premature explosion	No. 8	Stark
Nov. 17	James Pollock	Scottish	45	Chest and shoulder injured	Fall of trap-door	Massillon No. 12	Stark
1903.							
Dec. 28	Jno. Butler	American	35	Seriously injured	Cleaning fire boilers	Turkey Foot	Summit
1904.							
Sept. 17	Thomas Davis	American	25	Leg broken	Runaway engine	Beechwood	Summit
Jan. 19	Erna Roberts	English	25	Face and head cut	Premature explosion	Huff's Run	Tuscarawas
Feb. 9	John Smith	English	23	Hip and ankle injured	Caught between mine cars and rib	Massillon	Tuscarawas
Feb. 23	John Gibler	American	45	Seriously injured	Premature explosion	Peacock	Tuscarawas
Feb. 23	Wm. Farber	American	47	Arm broken	Premature explosion	Peacock	Tuscarawas
Feb. 25	Clyde Dallas	American	18	Leg bruised and finger broken	Premature explosion	Peacock	Tuscarawas
Mch. 7	Otto Smith	German	21	Seriously injured	Fall of rock	Royal Goshen	Tuscarawas
Mch. 11	Joseph Kopp	Swiss	40	Seriously injured	Fall of ice in air-shaft	East Goshen No. 1	Tuscarawas
Apr. 8	Geo. Bell	American	21	Leg broken	Falling from trestle	Midvale No. 4	Tuscarawas
Apr. 21	Wm. Gambel	American	56	Foot crushed	Mine car	Beaver Dam No. 1	Tuscarawas
					Fall of slate	Goshen Shaft	Tuscarawas

SERIOUS ACCIDENTS — Concluded.

Date.	Name.	Nationality	Age	Character of Injury.	Cause of Accident.	Name of Mine.	County.
Apr. 28	Joe Bell	American	23	Hip and leg injured	Attempting to alight from loaded car	Beaver Dam No. 1	Tuscarawas.
May 3	John Abel	German	36	Foot injured	Caught in machine bits	Thompson Run	Tuscarawas.
June 28	Jas. A. Sprinkle	American	29	Back injured	Fall of stone	North Goshen No. 2	Tuscarawas.
July 13	Samuel Miller	American	19	Leg broken	Mine car	West Goshen	Tuscarawas.
Aug. 12	Wm. Smith	American	31	Shoulder dislocated	Caught by cage	Beaver Dam No. 1	Tuscarawas.
Sept. 15	John Wilson	Scotch	50	Ribs broken	Fall of draw-slate	Goshen Shaft	Tuscarawas.
Sept. 22	Sam Border	American	50	Collar bone and rib broken	Fall of slate	East Goshen No. 2	Tuscarawas.
Sept. 24	Harry Lehr	German	42	Seriously injured	Fall of coal	Wainwright No. 4	Tuscarawas.
Sept. 23	Wm. Matthews	American	22	Thumb cut	Motor car	Beaver Dam No. 1	Tuscarawas.
Oct. 10	Jos. Monte	Italian	45	Collar bone injured	Fall of slate	Goshen Shaft	Tuscarawas.
Nov. 3	Joe Anderson	American	26	Ankle injured	Fall of stone	Houk	Tuscarawas.
Dec. 7	Richard Fox	German	21	Finger cut	Coupling mine cars	E. Goshen No. 1	Tuscarawas.
Dec. 22	John Rech	Italian	27	Arm, hand and ribs injured	Caught between mine car and rib	W. Goshen	Tuscarawas.
Oct. 13	Harman Radcliffe	American	35	Seriously injured	Fall of coal	Clarion	Vinton.
Nov. 16	Wm. Artis	American	30	Seriously injured	Premature explosion of dynamite	Alma Cement	Vinton.
Nov. 16	Wm. Wiseman	American	21	Seriously injured	Premature explosion of dynamite	Alma Cement	Vinton.
Feb. 25	George S. Reis	American	48	Ribs broken and arm injured	Fall of rock	Mobile	Wayne.
Oct. 20	Peter Shearer	German	40	Seriously injured	Fall of slate	West Lebanon	Wayne.
Oct. 23	Chas. Llewellyn	American	25	Rack and hips injured	Fall of draw-slate	No. 14	Wayne.
Nov. 17	Wm. Pratt	German	39	Foot injured	Caught between mine cars	No. 14	Wayne.

MINOR ACCIDENTS.

Date.	Name.	Nationality	Age	Character of Injury.	Cause of Accident.	Name of Mine.	County.
1903. Dec. 10	Ed. Quinn	American	40	Finger taken off.	Caught between cog-wheel and post	No. 254	Athens.
1904. Jan. 3	Thomas Hensley	English	25	Foot injured.	Machine truck jumping the track.	No. 252	Athens.
Feb. 9	Charles Withers	American	53	Head injured.	Coal falling down shaft.	Luhrig No. 2	Athens.
Mar. 8	James Woods	American	40	Foot crushed.	Caught between mine cars.	Bell Run	Athens.
Mar. 12	Wm. Roberts	Welsh	19	Finger mashed.	Coupling mine cars.	No. 252	Athens.
Mar. 17	Reuben Kettle	American	40	Face and hands slightly burned	Explosion of powder.	No. 23	Athens.
June 6	Jno. Rittenmeyer	German	62	Hips injured.	Fall of coal.	New Pittsburgh No. 4.	Athens.
June 11	Earl McNabb	American	15	Slightly injured.	Caught between mine car and rib.	New Pittsburgh No. 5.	Athens.
Aug. 16	Richard Waldie	American	20	Slightly injured.	Mining machine.	No. 311	Athens.
Aug. 23	Wm. Harry	Welsh	58	Hip dislocated.	By falling.	No. 311	Athens.
Sept. 19	Edson Nickerson	American	22	Leg bruised.	Mine cars jumping the track.	Bell Run	Athens.
Sept. 29	Charles Farnier	American	16	Leg and foot injured.	Mine cars jumping the track.	Shaffer	Athens.
Oct. 1	Wesley Papoy	Slav	35	Left leg bruised.	Piece of coal.	New Pittsburgh No. 5.	Athens.
Nov. 12	Lee Rutler	American	25	Foot and ankle injured.	Mine car.	No. 252	Athens.
Nov. 14	George Rutler	American	30	Leg bruised.	Flying coal.	Oakdale	Athens.
Nov. 16	Albert Roberts	American	22	Thumb crushed.	Coupling mine cars.	No. 252	Athens.
Nov. 18	Mathias Varnation	German	61	Hips injured.	Fall of coal.	No. 257	Athens.
Dec. 15	Arles Tiecoat	American	20	Hand injured.	Caught between car and break.	No. 24	Athens.
Dec. 27	Mark Potenia	Slav	23	Foot injured.	Lump of coal falling upon it.	Nail Mill	Athens.
July 6	Joe Brown	German	18	Leg injured.	Fall of slate.	Moore's Run	Belmont.
Sept. 4	Joseph Tote	Hungarian	19	Slightly injured.	Fall of stone.	Laughlin	Belmont.
Nov. 20	James Steele	American	26	Head cut and body bruised.	Fall of stone.	Crescent 31	Belmont.
Nov. 29	William Stasovec	Austrian	32	Back injured.	Fall of roof.	Empire No. 6.	Belmont.
Dec. 18	Robert Dams	American	26	Back injured.	Fall of slate.	Troll No. 2	Belmont.
Feb. 5	Michael Wheatley	American	26	Slightly injured.	Fall of stone.	O & W Va.	Belmont.
July 25	Chas. Hiner	American	31	Slightly injured.	Fall of slate.	New Shaft	Columbiana.
May 13	Sherman Bassett	American	20	Thumb and hand injured.	Mine car.	Morgan Run No. 3.	Columbia.
May 12	Caleb Blake	American	38	Hand injured.	Fall of coal.	No. 3	Cochocton.
1903. Dec. 19	Carry McCollum	American	30	Foot injured.	Mine car.	Old Orchard	Guernsey.
1904. Feb. 8	Oscar Rodgers	American	32	Slightly injured.	Explosion of gas under boiler.	Little Kate	Guernsey.
Feb. 24	Charles Gorley	American	38	Body and legs injured.	Fall of slate.	Old Orchard	Guernsey.
Mar. 11	Ames Bernard	American	17	Leg injured.	Mine car.	King	Guernsey.
Apr. 30	Wm. Ellwood	American	32	Arm injured.	Fall of slate.	Ideal	Guernsey.
May 5	Jno. Reittler	American	19	Slightly injured.	Fall of slate.	Union No. 1.	Guernsey.

MINOR ACCIDENTS — Continued.

Date.	Name.	Nationality.	Age.	Character of Injury.	Cause of Accident.	Name of Mine.	County.
May 9	Walter Dinning	American	35	Leg injured.	Fall of coal.	Kings	Guernsey.
June 28	Mike Mitchell	Slav	39	Foot injured.	Fall of coal.	Trail Run	Guernsey.
July 6	Ed. Lloyd	Welsh	39	Head and back injured.	Fall of draw-slate.	Blue Bell	Guernsey.
July 7	James Callahan	American	38	Foot injured.	Caught in a sheave wheel.	Trail Run	Guernsey.
July 8	Nicholas Pearson	English	27	Foot injured.	By machine bar.	Kings	Guernsey.
Aug. 23	Douglas Muller	American	35	Slightly injured.	Falling under mine car.	Old Orchard	Guernsey.
Aug. 27	Ed. r. Glen	French	54	Foot injured.	Fall of coal.	Kings	Guernsey.
Aug. 29	Ed. Lachewyger	American	29	Foot injured.	Caught between car bumpers.	Old Orchard	Guernsey.
Oct. 13	Nichol Motoko	Hungarian	35	Leg injured.	Fall of coal.	Klondike	Guernsey.
Nov. 19	John Pallot	Slav	29	Leg injured.	Fall of coal.	Kings	Guernsey.
Dec. 9	Edwin Harris	American	42	Face injured.	Gas explosion.	Cleveland	Guernsey.
Dec. 9	Joe. McVickers	American	26	Face injured.	Gas explosion.	Cleveland	Guernsey.
1903.							
Dec. 10	Joe. Metrick	Polish	35	Head slightly injured.	Fall of soapstone.	Adena No. 1	Harrison.
Dec. 28	Wm. Stiff	American	28	Shoulder and body bruised.	Caught between mine car and rib.	Adena No. 1	Harrison.
1904.							
Jan. 13	John Baber	Polish	27	Foot injured.	Loaded mine cars.	Adena No. 1	Harrison.
Jan. 20	Frank Brush	Italian	24	Head cut.	Fall of slate.	Adena No. 1	Harrison.
July 21	John Kowalski	Polish	62	Ankle bruised.	Fall of slate.	Adena No. 1	Harrison.
July 23	Ed. Keeton	Polish	32	Eye injured.	Struck by coal tender.	Adena No. 1	Hocking.
Apr. 21	D. P. Evans	American	30	Ankle injured.	Caught between machine truck and slate pile.	No. 7	Hocking.
Apr. 26	Joe. Jula	Hungarian	34	Eye injured.	Falling against mine car.	No. 7	Hocking.
May 6	Ed. Rankin	American	49	Knee injured.	Mine cars.	New Pittsburgh No. 7	Hocking.
May 8	Sam Franklin	American	42	Hand injured.	Caught by T rail while loading.	New Pittsburgh No. 7	Hocking.
May 16	Thomas Hill	American	21	Foot injured.	Stepping on nail.	New Pittsburgh No. 6	Hocking.
May 23	Louis Babler	American	38	Foot injured.	Fall of slate.	New Pittsburgh No. 7	Hocking.
June 23	Mathew Cook	American	25	Foot injured.	Fall of slate.	New Pittsburgh No. 7	Hocking.
June 4	Lewis McCoy	American	28	Foot injured.	Running a nail in it.	New Pittsburgh No. 7	Hocking.
June 29	Thos. Knight	American	26	Slightly injured.	Struck by a hatchet.	Cawthorn	Hocking.
June 29	Henry Simpson	American	41	Foot injured.	Mine car jumping the track.	New Pittsburgh No. 6	Hocking.
July 12	Walter Fox	American	30	Hand injured.	Caught in mining machine.	New Pittsburgh No. 6	Hocking.
July 12	George White	American	44	Head slightly injured.	Fall of coal.	New Pittsburgh No. 7	Hocking.
Aug. 8	Charles White	Afro-Amer.	28	Foot injured.	Fall of coal.	New Pittsburgh No. 7	Hocking.
Aug. 10	John Ranfield	American	26	Head slightly injured.	Machine truck running over it.	New Pittsburgh No. 7	Hocking.
Aug. 10	Wm. McCarver	American	26	Head slightly injured.	Fall of roof.	New Pittsburgh No. 6	Hocking.
Aug. 29	Wm. McCarver	American	26	Leg injured.	Falling slate.	New Pittsburgh No. 6	Hocking.
Sept. 3	James Wilson	American	26	Head and body slightly injured.	Thrown from horse.	New Pittsburgh No. 7	Hocking.
Sept. 6	Emert Bowen	English	19	Hand injured.	Fall of coal.	New Pittsburgh No. 3	Hocking.
Sept. 26	Samuel Stedman	American	57	Breast and lungs bruised.	Caught between mine car and rib.	Jobs No. 1	Hocking.
Sept. 26					Fall of coal.	New Pittsburgh No. 1	Hocking.

Oet	1	Patrick Galvin	Irish	28	Hand crushed	Mine car jumping the track.	Jobs No. 2.	Hocking.
Oet.	7	Walker Newall	Afro-Amer	34	Foot injured.	Run over by mining machine.	New Pittsburgh No. 7.	Hocking.
Oet.	10	John Warren	American	38	Right hand burned.	Electric switch.	New Pittsburgh No. 7.	Hocking.
Nov.	1	John Guya	Hungarian	32	Head slightly cut.	Fall of slate.	No. 7.	Hocking.
Nov.	2	Fred Webb	American	23	Leg injured.	By mine car.	Jobs No. 2.	Hocking.
Nov.	10	Joe Reinger	Hungarian	32	Slightly cut.	Piece of coal.	New Pittsburgh No. 7.	Hocking.
Nov.	17	James Kerr	American	32	Thumb cut.	By using hatchet.	No. 7	Hocking.
Nov.	27	Dan Rose	Italian	27	Left thumb cut.	Splitting with ax.	New Pittsburgh No. 7.	Hocking.
Dec.	18	Wm. Hibbard	American	29	Shoulder dislocated.	Shoveling coal.	New Pittsburgh No. 7.	Hocking.
1908.								
Nov.	18	John Breeding	American	22	Slightly injured.	Fall of rock.	Superior No. 8.	Jackson.
Nov.	23	Jasper Richards	American	22	Ankle sprained.	Fall of draw-slate.	Jones No. 8.	Jackson.
Dec.	8	Dennis Anduskey	German	26	Back injured.	Fall of slate.	Fulhart No. 1.	Jackson.
Dec.	20	Ed Delvin	American	44	Arm injured.	Caught between mule and post.	Superior No. 8.	Jackson.
1904.								
Jan.	19	Isaac Massie	American	36	Knee injured.	Fall of slate.	Superior No. 8.	Jackson.
Feb.	1	Lewis Search jr	American	29	Back injured.	Fall of slate.	Symmes Creek	Jackson.
Feb.	23	Lewis Ervin	American	27	Foot injured.	Mining machine.	Superior No. 8.	Jackson.
Feb.	24	J. W. Wilson	American	30	Arm injured.	Loaded mine car.	Commercial	Jackson.
Feb.	29	Wm. Music	American	40	Slightly injured.	Premature explosion.	Price	Jackson.
Feb.	21	Anderson Vittitoe	American	30	Head injured.	Fall of slate.	Price	Jackson.
Feb.	21	Anderson Vittitoe	American	40	Head injured.	Kicked by mule.	Fulhart No. 3.	Jackson.
Mar.	1	George Wade	American	22	Face injured.	Explosion of shot.	Maddox	Jackson.
Oct.	3	Jesse Semore	American	44	Head and shoulder injured.	Fall of slate.	Star	Jackson.
Nov.	15	Wm. Axline	American	40	Foot injured.	Explosion of shot.	Maddox	Jackson.
Nov.								
1903.								
Dec.	19	Robert Robinson	American	20	Leg injured.	Caught between car and motor.	High Shaft	Jefferson.
1904.								
Jan.	9	David Welch	American	40	Slightly injured.	Fall of stone.	McFayden	Jefferson.
Feb.	1	Andrew Baxter	American	36	Hip injured.	Caught between rib and wagon.	Jefferson No. 1.	Jefferson.
Feb.	5	Mike Delnzen	Slav	28	Slightly injured.	Mine cars.	Long Run	Jefferson.
Feb.	18	Ed. Brown	American	28	Slightly injured.	Mine cars.	Long Run	Jefferson.
Mar.	2	James Williams	American	35	Foot injured.	Caught between motor and mine cars.	Ruthven	Jefferson.
July	25	Chas. Coffman	American	27	Finger injured.	Coupling pin.	Dungen	Jefferson.
Sept.	7	Patrick Daugherty	American	25	Forehead injured.	Kicked by mule.	Amsterdam	Jefferson.
Nov.	25	Eugene Lenaldi	Italian	22	Foot injured.	Mine car jumping track.	Florence	Jefferson.
Nov.	25	Joe Pelotti	Italian	23	Eye injured.	Machine truck over-balancing.	No. 1	Jefferson.
Dec.	22	Dominic Clesline	Italian	25	Back and shoulder bruised.	Fall of slate.	No. 3	Jefferson.
Dec.	25	James Tipton	American	35	Back and shoulder bruised.	Falling on oil bucket.	Kelley	Lawrence.
Feb.	25	Moses Webb	American	40	Slightly injured.	Fall of slate.	Kelley	Lawrence.
May	28	Ensign Schaefer	American	30	Foot injured.	Fall of draw-slate.	Fairview	Lawrence.
June	8	Jacob Schullage	American	46	Foot injured.	Fall of slate.	Dabney	Mcigs.
1903.								
Dec.	24	Roy McNeal	American	17	Hip injured.	Caught between post and mine car.	Cadillac	Muskingum.
1904.								
Mar.	11	Frank Burns	American	28	Arm injured.	Caught between car and roof.	No. 10	Muskingum.

MINOR ACCIDENTS—Concluded.

Date.	Name.	Nationality	Age	Character of Injury.	Cause of Accident.	Name of Mine.	County.
1903. Dec. 23	Michael Vedo	Slav	22	Ankle sprained.	Mining machine.	Laura	Noble.
1904. Feb. 17	Andy Jansen	Hungarian	30	Slightly injured.	Fall of slate.	No. 20	Perry.
Mar. 19	Robert Pearce	American	19	Ankle sprained.	Fall of bone coal.	No. 321	Perry.
Dec. 13	Walter Stage	American	21	Foot injured.	Weight falling on it.	Indian Run	Perry.
Jan. 13	Charles Bukley	English	37	Foot injured.	Fall of coal.	Deerfield	Portage.
Jan. 22	Charles Shagnott	French	40	Foot injured.	Fall of coal.	Deerfield	Portage.
Feb. 27	Ivander Young	American	39	Foot injured.	Fall of coal.	Deerfield No. 4.	Portage.
Sept. 20	Jno. H. Williams	Welsh	57	Leg injured.	Fall of timber.	Hutson No. 7.	Portage.
1903. Dec. 30	Wm. Johnson	English	46	Back injured	Fall of rock.	No. 2	Stark.
1904. Feb. 16	James Johnson	English	18	Foot injured.	Squeezed between mine cars.	Elm Run No. 4.	Stark.
Apr. 30	Edwin Lawrence	German	49	Foot injured.	Caught between mine cars.	No. 15	Stark.
Aug. 19	Wm. Pollock	American	34	Slightly injured.	Falling from mine cars.	No. 2	Stark.
Dec. 1	Peter Wilhelm	German	53	Chest and hips bruised.	Undermining standing shot.	Brookfield	Stark.
1903. Nov. 13	Alexander Young	Scotch	16	Foot injured.	Caught between roller and car.	E. Goshen No. 1.	Tuscarawas.
Dec. 30	John Stoffer	American	32	Head and shoulder injured.	Fall of slate.	Novelty	Tuscarawas.
1904. Mch. 23	John Gibbs	English	28	Leg injured.	Caught between mine cars.	Huffs Run	Tuscarawas.
May 25	Andrew Grant	American	27	Back injured.	Fall of stone.	Beaver	Tuscarawas.
June 24	Thos. Kiser	American	30	Body and legs bruised.	Fall of stone.	North Goshen No. 2.	Tuscarawas.
Oct. 24	Chas. Ranft	American	27	Back injured.	Fall of stone.	Center Valley	Tuscarawas.
Dec. 30	Robert Beveridge	American	17	Foot slightly injured.	By setting post.	Thompson Run No. 1.	Tuscarawas.
June 22	Wm. Martin	Welsh	31	Foot injured.	Fall of coal.	Mohr & Minton.	Vinton.
July 8	Howard Snyder	German	32	Foot injured.	Caught between car and track.	Mohr & Minton.	Vinton.
Oct. 7	Charles Farley	Afro-Amer.	29	Hand injured.	Ran over by mine car.	Mohr & Minton.	Vinton.
Nov. 17	Fred Chaffield	American	23	Cheek and lip injured.	Kicked by mule.	Mohr & Minton.	Vinton.

REPORTS OF CHIEF AND DIS-
TRICT MINE INSPECT-
ORS' WITH ILLUS-
TRATIONS.

INSPECTORS AND DISTRICTS INTO WHICH THE STATE IS
DIVIDED, 1904.

GEO. HARRISON,

Chief Inspector of Mines, Wellston, Ohio.

FIRST DISTRICT.

Composed of the counties of Gallia, Jackson, Scioto, Vinton and Lawrence.

THOS. WATERS, *Inspector*,

Wellston, Jackson County, Ohio.

SECOND DISTRICT.

Composed of the counties of Athens, Meigs, Washington and Noble.

D. H. WILLIAMS, *Inspector*,

Glouster, Athens County, Ohio.

THIRD DISTRICT.

Composed of the counties of Muskingum, Morgan, Perry and Hocking.

L. W. HULL, *Inspector*,

Murray, Hocking County, Ohio.

FOURTH DISTRICT.

Composed of the counties of Monroe, Belmont, Harrison, and a portion of Jefferson.

THOS. MCGOUGH, *Inspector*,

Bridgeport, Belmont County, Ohio.

FIFTH DISTRICT.

Composed of the counties of Guernsey, Coshocton and Tuscarawas.

W. H. TURNER, *Inspector*,

Cambridge, Guernsey County, Ohio.

SIXTH DISTRICT.

Composed of the counties of Carroll, Columbiana, Mahoning, Trumbull, Portage, and a portion of Jefferson.

JAS. P. DAVIS, *Inspector*,

Salem, Columbiana County, Ohio.

SEVENTH DISTRICT.

Composed of the counties of Medina, Stark, Summit, Wayne and Holmes.

W. H. MILLER, *Inspector*,

Massillon, Stark County, Ohio.

INSPECTION OF MINES MADE BY THE CHIEF INSPECTOR
OF MINES AND DISTRICT MINE INSPECTORS, FROM
NOVEMBER 15, 1903, TO JANUARY 1, 1905.

Desirous of becoming acquainted with the location and conditions of as many mines as possible, we personally visited forty-seven mines during the year from the time of our appointment as Chief of the Mining Department, on May 1, 1904, and in company with the District Inspectors in a great many cases made very thorough inspections. The mines visited by us were located in Tuscarawas, Jefferson, Jackson, Columbiana, Guernsey, Noble, Vinton, Mahoning and Perry counties, all of which are fully noted in the annual reports of the District Inspectors, and needs little reference by us; suffice to say that while, as indicated in some instances by the District Inspectors reports, the mines were not found in a condition required by the mining laws, we appreciate the courtesy of both operators and miners and the general desire of the managers of mines to comply with any suggestion and their willingness to carry out any order or request made by the Inspector.

There was a change in the personnel of the inspecting force during the year 1904, which occurred in District No. 1, where Thomas Waters, Wellston, O., superseded Ed S. Smith, Logan, O., as Inspector, and also in the Third Mining District, where Jno. Winefordner was succeeded by L. W. Hull, Murray, O. These appointments were made in the month of June.

As all the statistics contained in the annual report of this department are compiled for the calendar year, it was deemed advisable to have the reports of mines visited, accidents, and all other data pertaining to mines correspond with the calendar year, and with this object in view we have prepared this report along those lines. The number of visits noted, therefore, will be from November 15, 1903, up to January 1, 1905, inclusive. The total number of visits made by the Chief Inspector of Mines and the District inspectors number 1,789; of this number 47 were made by the Chief Inspector.

In District No. 1, 235 inspections were made, 152 by Thos. Waters and 83 by Ed S. Smith.

In the Second District, which is in charge of D. H. Williams, 207 visits were made, 149 of which were made in Athens, 38 in Meigs and 10 in outside districts.

District No. 3 reported 222 visits made to mines, 152 being made by L. W. Hull and 70 by John Winefordner.

Thos. McGough, Inspector for the Fourth Mining District, made 240 visits to the mines of his district, 157 of which were made in Belmont county, 64 in Jefferson and 18 in Harrison.

In the Fifth District 293 visits were made by W. H. Turner, 110 in Guernsey and 120 in Tuscarawas, in addition to mines that were visited in other districts.

Two hundred and sixty-seven (267) inspections were made in the Sixth Mining District by Inspector Jas. P. Davis.

W. H. Miller, in charge of the Seventh Mining District, visited mines to the number of 278, 163 visits being made to the mines of Stark county, 29 in Medina, 17 in Summit and 16 in Tuscarawas.

The following is a list of mines visited by the Chief Inspector: Columbiana county—Cherry Valley, Big Walnut, McNab and Leetonia. Guernsey—Walhounding, Cleveland No. 1 and Hazel. Jackson—Jerry Morrow, Fluhart No. 3, visited thrice; Superior No. 9, visited twice; Superior No. 1. Jefferson county—La Belle, Dillonvale No. 2, Dunglen, Edgar Nos. 1 and 2, Amsterdam, Jefferson Nos. 1, 2 and 3; West Pittsburg and Zerbe. Mahoning—Fairview. Noble county—Noble and Laura. Perry—Bear Run No. 1. Tuscarawas county—Midvale No. 3, Wainwright Nos. 4 and 6, Reeves Nos. 1 and 2, Egypt No. 1, Goshen Central, East Goshen Nos. 1 and 2, Goshen Shaft, Beaver Dam Nos. 1 and 2, Goshen Hill, Central Valley Nos. 1 and 2, Somerdale No. 1 and West Goshen. Vinton County—Alma Cement.

TABLE SHOWING THE NUMBER OF VISITS OF MINES MADE BY THE CHIEF INSPECTOR AND DISTRICT INSPECTORS IN THE VARIOUS COUNTIES AND DISTRICTS OF THE STATE FROM NOVEMBER 15, 1903, TO NOVEMBER 31, 1904, INCLUSIVE.

Counties.	Waters.	Smith.	Williams.	Hull.	Winefordner.	McGough.	Turner.	Davis.	Miller.	Chief Inspector Geo. Harrison.	Total Visits.
	1st Dist.		2d Dist.	3d Dist.		4th Dist.	5th Dist.	6th Dist.	7th Dist.		
Athens		3	149	8							160
Belmont						157	12				169
Carroll								42			42
Columbiana			1			1		88	1	4	95
Coshocton							29				29
Gallia	1		5								6
Guernsey							110			3	113
Harrison						18					18
Hocking		30		55							85
Holmes							1		14		15
Jackson	110	38								7	155
Jefferson						64		111		11	186
Lawrence	19		5								25
Mahoning								17		1	17
Medina									29		29
Meigs			38								38
Muskingum			3	7	13		8				31
Morgan				4	1						5
Noble					1		13			2	16
Ottawa									3		3
Perry			6	78	55					1	140
Portage									14		14
Scioto	2										2
Stark									163		163
Summit									17		17
Trumbull											
Tuscarawas							120	9	16	17	162
Vinton	20	12								1	33
Washington											
Wayne									21		21
Total No. of Mines Visited	152	83	207	152	70	240	293	267	278	47	1,789
No. of Idle Mines Visited	8	2	61		37				31		

FIRST DISTRICT.

THOS. WATERS.

GALLIA, JACKSON, SCIOTO, VINTON AND LAWRENCE.

WELLSTON, OHIO, December 31, 1904.

HON. GEORGE HARRISON, *Chief Inspector of Mines, Columbus, Ohio.*

DEAR SIR:— In compliance with the custom of the Mining Department, I herewith submit to you my first annual report of my visits to the various mines located in the First Mining District from June 1 to December 31, 1904, both dates included.

In my endeavor to fully discharge the duties of District Mine Inspector, I have visited the mines under my supervision as often as time and the other duties of the office would permit. While a number of the mines inspected by me were found to be in fair condition, I frequently found one in such a state of disorder that it was necessary to cease operations until the safety of the miners was secured.

While always keeping in mind the importance of good ventilation and other sanitary conditions essential to the health of the miners, it has been my highest aim to protect the lives of the men in the mines coming under my jurisdiction, yet notwithstanding my many suggestions for watchfulness and care, eleven of our craftsmen have met with untimely deaths in the mines of this district during the time covered by this report. Seven occurred in Jackson, one in Lawrence, and three in Vinton county, at the following mines: Two at Grace mine, one at Superior No. 9, one at Milton No. 3, one at Davis Fire Brick, one at Superior No. 8, one at Jerry Morrow mine, Jackson county; two occurred at the Alma Cement mine, Vinton county, and one at Elk Fork; one at Cager Kingery mine, Lawrence county.

The condition of the coal trade in the First District for the year 1904 was not as good as compared with the preceding one, owing to various reasons, such as the unsettled trade, the opening up of new mines in the several counties of the district, and the inability of the railroads to furnish cars to the mines caused the trade to be very unsettled, and the miners felt the result in working only about one-half time.

In submitting my report, I desire to extend to you my thanks for the many courtesies and valuable assistance rendered to me.

Very truly yours,

THOS. WATERS, Wellston, Ohio,
Inspector First Mining District.

DESCRIPTIVE LIST OF MINES LOCATED IN JACKSON COUNTY..

MCGHEE.

Is located on the O. S. R. R., and is operated by the McGhee Coal Co., Wellston, O. B. R. Billingsley is superintendent and Thos. Creger, Wellston, O., is mine boss. It consists of two (2) drift openings into the No. 4 seam and No. 5 seam of coal. A furnace is in use as ventilating medium; 40 miners and 11 day hands are employed. Inspected twice during the year, and found in good condition. Electric machines are in use to cut the coal. The coal is here three and one-half feet in thickness.

MICHIGAN AND OHIO.

Is located on the O. S. R. R., and is operated by the Michigan and Ohio Coal Co., Wellston, O. Owen Callahan, Wellston, O., has entire supervision. Drift opening, No. 4 seam, about four feet thick. Twenty-one miners and 11 day hands employed. This is a new mine, just commencing operations, and will install fan ventilation. Equipped with a Jeffrey electric plant. Inspected once and found in good condition.

VICTOR No. 1.

Is located at Coalton, O., on the C. H. & D. R. R., and is operated by Thos. J. Evans, Coalton, O., who is superintendent; and J. W. Whiting, Coalton, O., is mine foreman. Drift opening, No. 2 seam, thirty inches thick, ventilated by a furnace. Ten miners and five day hands employed. Inspected once and found in fair condition. Picks are used to mine the coal.

SUPERIOR No. 1.

Is located near Wellston, O., on the C. H. & D., and O. S. R's, and operated by the Superior Coal Co., Jackson, O. N. M. White, Jackson, O., is superintendent, and E. A. Thomas, Coalton, mine boss. Shaft opening into the No. 2 seam, about three feet thick. One hundred and thirty-five miners are employed and 42 day hands. Ventilated by a fan. Four inspections were made. On June 4 and June 18th the mine was in bad condition, owing to the airways being choked with slate; orders were given to clean the airway out and to repair brattices. On July 19 the mine was found in an improved condition. Picks are used to mine the coal. On September 19, in company with Chief Inspector of Mines, George Har-

rison, the mine was visited to search for a man by the name of Jacob Layman, who was supposed to have been lost in the mine. A systematic search was made of the mine, but failed to find any trace of him. The following description by the Chief Inspector of Mines is very interesting in connection with this peculiar occurrence.

A LOST MINER.

A very peculiar incident occurred during the year at Superior No. 1 mine, in Jackson county, where Jacob Layman, a man said to be of rather weak intellect and who lived alone, was seen to go into the mine on Tuesday forenoon, September 13, the mine being idle on that day. On Wednesday the mine resumed operations, and Layman's dinner bucket being found in his working place, but with no trace of the man, caused alarm as to his whereabouts or safety. On the following three or four days the mine ceased work, and most of his fellow-miners spent the time in searching for him, but without result. On Monday morning, September 19, Thos. Waters, District Mine Inspector, George Cecil, Sub-District President of the Miners' Organization, and myself went to the mine and held a meeting of the miners. As characteristic of miners under such circumstances, they all volunteered to spend another day in searching for the unfortunate man, and twelve sets of men, five in each set, made a thorough and systematic search, a portion of the mine being allotted to each set of men, which recorded its number in every part of the mine visited by it, but without the semblance of a trace of the man or his body. Upon our advice, the men returned to work on the following day, and to advise us if anything further was learned regarding the case, but, strange to say, the mystery of his disappearance is yet unsolved.


GEO. HARRISON.

SUPERIOR NO. 2.

Is located near Wellston, O., on the C. H. & D. R. R., and is operated by the Superiod Coal Co., Jackson, O. N. M. White, Jackson, superintendent, and Chas. May, Wellston, mine boss. Shaft opening, 80 feet deep, penetrating the No. 2 seam, about three feet thick, and ventilated by a fan. Fifty-four miners and 31 day hands employed. One inspection was made on June 17, and the ventilation found deficient. Pillars are being drawn, and the mine will soon be abandoned. Picks are used to mine the coal.

SUPERIOR NO. 3.

Is located near Wellston, O., on a switch of the B. & O. S.-W. R. R., and operated by the Superior Coal Co., Jackson, O. N. M. White, Jackson, O., superintendent, and C. M. Hutchinson, Glen Roy, O., is mine boss. Shaft opening, 47 feet deep into the No. 2 seam of coal, which is about four feet thick, and ventilated by a fan. One hundred and seventy-five



miners and 65 day men are employed. Twice inspected, and found in fair condition with the exception of the Straight south entry, where the ventilation was found to be very sluggish, owing to needed repairs of the doors and brattices, which were ordered repaired at once. Picks are used to mine the coal.

SUPERIOR No. 4.

Is located three miles south of Wellston, O., on the C. H. & D. R. R., and operated by the same company as the Nos. 1, 2 and 3 mines, the same superintendent being in charge, with D. E. Woodruff as mine boss. Shaft opening, 85 feet deep, penetrating the No. 2 seam of coal, which is here **about three feet thick**. Fan ventilation is in use. Eighty-two miners and 39 day men are employed. Two inspections were made, and the mine found in fair condition. Picks are used to mine the coal.

SUPERIOR No. 8.

Is located two miles west of Wellston, on a switch of the C., H. & D. R. R., and operated by the Superior Coal Co. N. M. White is superintendent and Henry Shires, Wellston, O., mine boss. Shaft opening, 90 feet deep into the No. 2 seam, which is about four feet thick and ventilated by a fan. Three hundred and fourteen miners and 120 day men employed. Inspected three times. On second visit the north side of the mine was in bad condition, owing to the absence of doors; requested check doors placed on all butt entries, in order to circulate the air into the rooms. On December 22, mine was found in an improved condition, the repairs that had been requested on my previous visit having been partially carried out and preparation being made to comply with the others. Electric machines cut the coal.

SUPERIOR No. 9.

Is located on the C. H. & D. D. R. R., and operated by the Superior Coal Co. N. M. White is superintendent and Sam Wilson, Wellston, is mine foreman. Shaft opening to the No. 2 seam, which is from three to four feet thick, and ventilated by a fan. One hundred and seventy miners and 78 day hands are employed. Two visits were made during the year. On July 26 the ventilation was found to be deficient, and requested that break-throughs in rooms be closed up and check doors placed on all butt entries. Wm. Stevens was killed at this mine on September 14, 1904, at the face of his working place, by a fall of slate. This shaft is 150 feet deep, and electric machines are used to mine the coal.

SUPERIOR No. 10.

Is located on the C. H. & D. R. R., and operated by the Superior Coal Co. N. M. White is superintendent, and Wm. Warner, Wellston, O., is

mine boss. This mine consists of five drift openings, which penetrate the No. 4 and No. 5 seams of coal. A fan is used as a ventilating medium. Two hundred and seven miners and 90 day hands are employed. Three inspections were made, and the mine found in fair condition. Jeffrey electric machines are used to mine the coal.

FLUHART No. 1.

Is located at Wellston, O., on the B. & O. S.-W. R. R., and is operated by the Fluhart Coal and Mining Co., Wellston, O. Theo. Fluhart, Dayton, O., is general manager and superintendent. David Powell, Wellston, O., is mine boss. Shaft opening into the No. 2 seam of coal, which is about three feet thick. A fan is used to ventilate the mine. Sixty-eight miners and 40 day hands are employed. Inspected twice, and found in fair condition. Tested two sets of Fairbanks scales, and found them correct. Pick mining is in use.

FLUHART No. 2.

Is located at Wellston, O., on the B. & O. S.-W. R. R., and is operated by the same company as the No. 1, with the same superintendent. Benj. Sweet is mine boss, of Wellston, O. Shaft opening 146 feet deep, to the No. 2 seam of coal, which is about two feet thick. Fan ventilation is in use. Twenty-five miners and 14 day hands employed. Two visits were made, and found in fair condition. Electric machines cut the coal. Tested scales and found them correct.

FLUHART No. 3.

Is located at Wellston, O., on the B. & O. S.-W. R. R., and operated by the same company as the No. 1 and No. 2 mines, with the same superintendent. B. M. Persons, Wellston, O., is employed as mine boss. This is a shaft opening, 80 feet in depth, which penetrates the No. 2 seam of coal, which is about 28 inches thick. A fan supplies the mine with artificial ventilation. Twenty-five miners and 10 day hands are employed. Inspected three times, and found in fair condition, with the exception of the No. 2 east entry, where the ventilation was deficient, owing to the doors and brattices being in need of repair. Requested the mine boss to repair them at once. Fire-damp was detected in this mine, and the attention of the company was called to it, and requested to employ a fire boss. Pick mining is in practice. On August 1, in company with Chief Inspector Harrison, it was found that there was no fireman to examine the working places before the miners commenced work in the morning. On account of the presence of fire-damp a fire boss was ordered. Also a dam, which had been erected to dam the water coming from the Wainwright mine, was considered a source of danger, and an order was given to have it opened, which was complied with. On September 26, Jas. Collins was

burned with gas in this mine, and was unable to resume his duties until November 2, 1904.

GLOBE.

Is located at Jackson, O., on the B. & O. S.-W. R. R., and is operated by the Globe Iron Co., Jackson, O. John James, Jackson, O., is superintendent, and Thos. Hughes of the same place is mine boss. This is a shaft mine, 100 feet in depth to the No. 1 seam of coal, and is about three feet thick, and is ventilated by a fan. Sixty-nine miners and 20 day hands are employed. One inspection was made during the year, and found in bad condition. Requested the management to place the mine in proper condition. Tested scales and found them correct. Picks are used to mine the coal.

MADDOX No. 1.

Is located on the Springfield Switch, and is operated by J. W. Maddox, Coalton, O., who is superintendent, and Robert Maddox of the same place is mine boss. It is a drift opening into the No. 2 seam of coal, which at this point is about 28 inches thick, worked on the single entry system and ventilated by means of a furnace. Twelve miners and three day hands are employed. One visit was made, and the mine found in fair condition. Picks are used to mine the coal.

JONES' SLOPE.

Is located at Wellston, O., on the O. S. R. R. switch, and is operated by J. E. Jones Coal Co., Jackson, O. J. E. Jones, Jackson, O., superintendent, and M. M. Morgan of the same place is mine boss. It is a slope opening, 150 feet deep into the No. 2 seam, which is here about three feet thick. Ventilated by a fan, and employs 25 miners and 13 day hands. This mine was visited once during the year, and found in fair condition. Pick mining is in practice.

OHIO.

Is located on the O. S. R. R., and is operated by the J. J. Rowe Coal Co., of Coalton, O. J. J. Rowe is superintendent, and H. B. Kisor of the same place is mine boss. Slope 170 feet in depth to the No 2 seam, 30 inches thick. A fan is used for ventilating purposes, and 20 miners and 11 day hands find employment here. Two inspections were made. On July 28 the ventilation was found deficient, owing to the airways being choked with slate. Requested that the mine be placed in condition to comply with the mining laws. On August 22 the mine was found in an improved condition, the orders given at my previous visit having been complied with. Picks are used to mine the coal.

ECLIPSE.

Is located at Chapman, O., on the Springfield Switch, and is operated by the Atlas Coal Co., Jackson, O. E. Roberts, Coalton, O., is superintendent and Jas. Oliver, Chapman, O., is mine boss. The opening is a drift penetrating the No. 2 seam of coal, which is about 30 inches in thickness. Furnace ventilation is in use, and nine miners and two day hands are employed. Visited once, and found in fair condition. Picks are used in mining the coal.

CORNELIA No. 2.

Is located on the O. S. R. R., and is operated by the Cornelia Mining Co., Wellston, O. Carl Goddard is superintendent, and Wm. Corn of the same place is mine boss. The opening is a drift to the No. 4 seam, and is about four feet thick, ventilated by a furnace, and employs 23 miners and seven day hands. Visited twice during the year. On September 21 the ventilation was found deficient, and orders given for certain improvements. On October 24 the mine was found in an improved condition. Tested the scales, and found them correct. Picks are used to mine the coal.

LIMESTONE.

Is located at Remple, O., on the C. H. & D. R. R., and is operated by the McKitterick Coal Co., Remple, O. Thos. Evans, Remple, O., is superintendent and Oscar Stivey of the same place is mine boss. This is a drift opening to the No. 4 seam of coal, and is here about four feet thick. A furnace is used for ventilating purposes. Twenty-four miners and six day men are employed. Inspected once, and found in good condition. Scales were tested and found discriminating against the miners. Requested them repaired at once. Electric machines are used to cut the coal.

DAVIS FIRE BRICK.

Is located at Oak Hill, O., and operated by the Davis Fire Brick Co., Oak Hill, O. E. J. Davis, Oak Hill, O., is superintendent, and George Yates of the same place is mine boss. Drift opening to the No. 5 seam, which is about 30 inches thick. The fireclay overlaying the coal is about two feet thick and is also mined, both products being used in the brick works. Worked on the single entry system, and has furnace ventilation. Twelve miners and three day men are employed. Visited twice, and found in fair condition. Called to this mine on October 11 to investigate the cause of death of Thos. C. Williams, who was killed by a piece of fireclay falling from the roof, killing him instantly. He was in the act of tamping a hole when the clay fell. The place had been sounded a short time before the accident occurred, and they were of the opinion that it was safe to work in.

OHIO FIRE BRICK.

Is located at Oak Hill, O., and is operated by the Ohio F. B. Co., Oak Hill, O. G. G. Davis, Oak Hill, is superintendent, and Jno. C. Evans is mine boss. Drift opening to the No. 5 seam of coal, which is about 28 inches in thickness. A furnace is used as a ventilating medium. Five miners and four day hands are employed. One inspection was made, and found in fair condition. Picks are used to mine the coal.

EMMA No. 2.

Is located one-half mile north of Altoona, on the O. S. R. R., and is operated by the Emma Coal Co., Jackson, O. Edwin Jones, Jackson, O., is superintendent, and Dan C. Jones, Coalton, O., is mine foreman. Shaft opening, 100 feet deep, penetrating the No. 2 seam, which is about three feet thick. A fan is used for ventilating purposes. Thirty-five miners and 19 day hands are employed. Two inspections were made during the year. Found in fair condition, with the exception of No. 1, west entry, where the ventilation was deficient, owing to the doors and brattices being in need of repair, which was ordered remedied. On my second inspection, found that my former requests had been complied with and the mine in good condition. Picks are used to mine the coal.

JONES AND MORGAN, No. 3.

Is located on the C. H. & D. R. R., and is operated by Moses Morgan, Jackson, O., who is superintendent, and D. R. Jones, Jackson, O., is mine boss. Slope opening to the No. 2 seam, which is about three feet thick. Ventilated by a fan, and employs 44 miners and 25 day hands. Inspected once, and found in good condition. Picks are used to mine the coal.

ROWE.

Is located near Coalton, O., on the O. S. R. R., and is operated by Wm. Rowe & Son, Coalton, O. Wm. Rowe is superintendent and Jas. Courtney of the same place mine boss. Drift opening, No. 2 seam, 30 inches thick and ventilated by a furnace. Employs 16 miners and 4 day hands. Inspected once and found in fair condition. Picks are used to mine the coal.

LUCY.

Is located on the O. S. R. R., and is operated by the Lucy Coal Co., Coalton, O. Sherman Walker, Coalton, O., has entire supervision. Drift opening, No. 2 seam, and the coal is about 28 inches thick. Natural ventilation, and employs 12 miners and three day hands. Inspected once, and found in fair condition. Picks are used in mining the coal.

McKITTRICK.

Is located on the C. H. & D. R. R., and is operated by the Jackson Fuel Co., Oak Hill, O. C. P. England has entire supervision. Drift opening, No. 5 seam, which is about three feet thick. Furnace ventilation, and 30 miners and 11 day hands are employed. Two inspections made. On August 26 the ventilation was found deficient, and ordered the mine to cease work, and the management was requested to place the mine in proper condition. On August 29 the mine was in an improved condition, the orders formerly given having been complied with and the mine permitted to resume operations. Tested the scales and found them correct. Electric machines are in use to mine the coal.

SPRINGFIELD.

Is located at Chapman, O., on the Springfield Switch, and is owned and operated by the Chapman Coal Co., Jackson, O. J. E. Hayes, Chapman, O., is superintendent, and W. J. Eisnagle, Chapman, O., mine foreman. Shaft opening 54 feet in depth to the No. 2 seam of coal, which is about three feet thick. Fan ventilation is in use. Two inspections were made during the year, and the mine found in fair condition. Electric machines cut the coal.

CHAPMAN.

Is located at Chapman, O., on the O. S. R. R., and is operated by the Chapman Coal Co., Jackson, O. J. E. Hayes superintendent, J. A. Houser, Chapman, O., mine boss. Drift opening, penetrating the No. 2 seam, and is ventilated by a fan. Forty-five miners and 19 day hands are employed. Two visits were made to this mine, and found in fair condition, with the exception of the No. 1 east entry, where the ventilation was deficient, owing to the doors and brattices being in need of repair. Picks are used in mining the coal.

GRACE.

Is located on the Ada Switch of the O. S. R. R., and is operated by the Chapman Coal Co., Jackson, O. J. E. Hayes is superintendent and Jno. Newport, of Chapman, is mine boss. Shaft opening penetrating the No. 2 seam of coal, which at this point is about three feet thick. Fan ventilation, and employs 80 miners and 24 day hands. Visited three times during the year. On June 16 the ventilation was found deficient. On August 23 was called to this mine to investigate the cause of death of Samuel Butts, who was killed by a fall of slate. He was riding on a trip of cars when the slate fell on him. Green Grant was injured on the same day by a fall of slate at the face of his working place, and died from injuries received on September 4. On December 3 the mine was found in an improved condition, and many valuable improvements being made in the

way of timbering. The management is endeavoring to comply with the Mining Laws, which the improved condition of the mine gives evidence of. Electric machines are used to cut the coal, which is hauled to the shaft by means of a motor.

MADDOX No. 2.

Is located on the Ada Switch, and is operated by the Maddox Coal Co., Coalton, O. J. W. Maddox is superintendent and A. I. Maddox mine boss. Drift opening, into the No. 3 seam of coal, which is here about 24 inches in thickness. Fire basket is used as a means of ventilation. During the year ten miners and two day hands were employed. This mine was found in fair condition. Picks are used to mine the coal.

.. ROTTINGHAUS.

Is located on the O. S. R. R., and is operated by the Rottinghaus Coal Co., Jackson, O. Clem Rottinghaus is superintendent and Sherman Zerian, Jackson, O., is mine boss. Drift opening, to the No. 1 seam of coal, which is about 28 inches thick. Furnace ventilation is in use, and 30 miners and 10 day hands find employment. Inspected twice during the year. On August 3 the mine was found idle, and no inspection was made. On September 26 the mine was inspected, and found in good condition. Picks are used for mining the coal.

BUCKEYE No. 2.

Is located on the C., H. & D. R. R., and is operated by Harper Woods, Coalton, O. P. E. Harper, Coalton, O., is superintendent and Thos. Woods, Byers, O., is mine boss. Drift opening, penetrating the No. 2 seam, which is about 30 inches thick at this place. Seven miners and three day hands are employed. Furnace ventilation. Inspected once during the year, and found in good condition. Picks are used for mining the coal.

COALTON COAL CO.

Is located near Remple, O., on the C. H. & D. R. R., and is operated by the Coalton Coal Co., Coalton, O. Norris Cameron, Coalton, O., is superintendent and W. O. Lambert, Remple, O., is mine foreman. Drift opening, to the No. 5 seam, which varies in thickness from 28 to 30 inches. Furnace ventilation, and 11 miners and two day hands are employed. Inspected once on November 2, when it was found that the ventilation was deficient, owing to the airway being choked with slate, which was ordered cleaned up at once.

WEST.

Is located on Springfield Switch, and is operated by the West Coal Co., Coalton, O. O. R. West, Coalton, O., is superintendent, and Chas.

Booth, Coalton, O., is mine boss. Drift opening, into the No. 2 seam of coal, which is about two feet in thickness at this place. Natural ventilation is in use. Eight miners and three day hands are employed. One inspection was made during the year, and the ventilation found deficient, owing to the fact that it was all pillar work. Picks are used to mine the coal.

HIPPEL.

Is located on the Ada Switch, on the O. S. R. R., and is operated by the Hippel Coal Co., Coalton, O. W. D. Hippel, Coalton, O., is superintendent, and J. E. Rowe, Coalton, O., is mine foreman. Slope opening, 150 feet in depth to the No. 2 seam of coal, which is here about three feet thick. Ventilation, fan; employes, 26 miners and 16 day hands. Twice visited the mine, found in fair condition. Tested the scales and found them discriminating against the miners and requested that they be adjusted at once, which was done. Date of inspection, December 27, 1904. Picks are used in mining the coal.

SYMME'S CREEK.

Is located at Remple, O., on the C., H. & D. R. R., and is operated by the Symmes Creek Coal Co., Jackson, O. Emmit Dungan, Jackson, is superintendent, and Enos Miller, Remple, O., is mine boss. Drift opening, penetrating the No. 5 seam of coal, which is about 30 inches thick at this place. Natural ventilation is in use, and nine miners and four day hands are employed. One inspection was made, and the ventilation found deficient. Suggested that the furnace be built, which the management readily agreed to do. Electric machines of the Morgan-Gardner type are used for mining the coal.

OAK HILL F. B. MINE.

Located at Oak Hill, O., and is owned and operated by the Oak Hill F. B. Co., Oak Hill, O. J. J. Thomas, Oak Hill, is superintendent, and Jesse Smith of the same place is mine foreman. Drift opening, to the No. 5 seam of coal, which is from 24 to 30 inches thick. Furnace ventilation, and employs 10 miners and four day hands. Inspected once during the year, and found in good condition. Both clay and coal are mined. The brick works at Oak Hill consumes the product mined, which is produced by means of picks.

MILTON No. 2.

Is located at Wellston, O., on the C., H. & D. R. R., and is operated by the Milton Coal Co., Wellston, O. Wm. Montgomery, Wellston, O., is superintendent, and Nick Foit of the same place mine boss. Shaft opening, penetrating the No. 2 seam of coal, which is about four feet thick. Fan Ventilation, and employs 12 miners and eight day hands. Inspected once, and the general condition of the mine found good for one nearing

exhaustion. Pillars are now being drawn, and the mine will soon be abandoned. Picks are used to mine the coal.

ACORN SLOPE.

Is located southwest of Glen Roy, on the C., H. & D. R. R., and is operated by the Jones Coal Co., Jackson, O. Jno. E. Jones is superintendent and C. W. Holmes, Wellston, O., is mine boss. Slope opening, 340 feet deep, penetrating the No. 2 seam of coal, which is three feet thick. Fan ventilation, and employs 55 miners and 30 day hands. Two inspections were made. On June 10 the ventilation was found deficient, and the mine boss was requested to place the mine in compliance with the Mining Laws with as much dispatch as possible. On June 24 the mine was found in an improved condition. Electric machines are used in cutting the coal.

DAYTON COAL & IRON.

Is operated by the Dayton Coal & Iron Co., Wellston, O., and is located in South Wellston, on the C. H. & D. R. R. W. B. Montgomery, Wellston, O., is superintendent, and Cornelius Coyle, of the same place, mine boss. Shaft opening penetrating the No. 2 seam of coal which is about 4 feet thick, and is ventilated by a fan. One hundred and seventy-three miners and 70 day hands are employed. Five inspections were made during the year. This mine has been a source of annoyance during the whole year, the ventilation being deficient at all times. On October 18th, ordered the south side of the mine to cease operations until the mine was placed in proper condition. On October 22d, I found that some improvements had been made and the mine was permitted to resume operation. Electric machines cut the coal.

COMET.

Is located at Wellston, O., on the C., H. & D. R. R., and is operated by J. D. Whitmore of Dayton, Ohio. Jas. Gallagher, Wellston, is in charge and has entire supervision. Shaft opening into No. 2 seam of coal, and is about 4 feet thick; fan ventilation; 5 miners and 3 day hands are employed. Inspected, and conditions good for a mine that is nearing exhaustion. The solid coal is all worked out in this mine, and it will soon be abandoned. Picks are used to mine the coal.

BLOOMFIELD.

Is located on the C. H. & D. R. R., at Ridgeland, O., and is operated by the Bloomfield Coal Co., Ridgeland, O. G. W. Eagle, Ridgeland, Ohio, is superintendent and Henry Grider of the same place is mine boss. Drift opening penetrating the No. 4 seam which is about 4 feet

thick. A furnace is used as a ventilating medium. Thirty-two miners and eight day hands are employed. One inspection was made of this mine during the time covered by this report and the mine found in fair condition. Picks are used to mine the coal.

WELLSTON FUEL.

Is located on the O. S. R. R., and is operated by the Wellston Fuel Co., Wellston, O. Arthur Woodrow, Wellston, O., is superintendent and Sol Kimbel of the same place mine boss. Drift opening to the No. 4 seam of coal which is about three feet thick. Fan ventilation is in practice and eight miners and four day hands are employed. Inspected once during the year and the mine found in first class condition. Electric machines are used to cut the coal.

SOUTHERN OHIO.

Is located on the O. S. R. R., and is operated by the Southern Ohio Coal Co., Wellston, O. Jno. Sylvester, Wellston, O., is superintendent and Frank Pierpont of the same place is mine boss. Drift opening, into the No. 5 seam of coal, which at this point is about 28 inches thick; 11 miners and 6 day hands are employed. Furnace ventilation is in use. Inspected once during the year, and found in fair condition. Electric machines are used to cut the coal.

HIBALL.

Is located on the Springfield switch of the O. S. R. R., and is operated by the Armstrong Coal Co., Jackson, Ohio. D. Armstrong, Jackson, Ohio, is superintendent and J. W. Moor, Chapman, Ohio, is mine boss. This is a drift opening to the No. 2 seam which is about twenty-eight inches thick. Fan ventilation and employs seven miners and three day hands. Inspected once during the year and the ventilation found deficient owing to the doors and brattices being in need of repairs. Requested the repairs to be made at once. Picks are used to mine the coal.

JERRY MORROW NO. 1.

Is located on the O. S. R. R. and is operated by the Jerry Morrow Coal Co., Wellston, Ohio. H. A. Goddard, Wellston, Ohio, is superintendent and Cal. Littlejohn, Wellston, Ohio, is mine boss. Shaft opening 150 feet in depth to the No. 2 seam of coal, which is about three feet in thickness. Fan ventilation, and twenty-seven miners and fifteen day hands are employed. Was called to this mine on June 24th to investigate the cause of the death of Robert Loudermilk who was killed by an explosion of dynamite. On August 1st in company with Chief Inspector George Harrison, an inspection was made and fire damp was discovered. The at-

tention of the Jerry Morrow Co., was called to same, and they were requested to employ a fire boss which was agreed to. This is a new mine and is equipped with an electrical plant. The coal will be mined by electricity.

WASHINGTON.

Is located at Monroe Furnace on the B. & O. S. W. R. R., and is operated by the Washington Coal Co., Reading, Ohio. H. H. Eling, Reading, Ohio., is superintendent, and W. C. Dickers, Eifort, O., is mine foreman. Drift opening to the No. 4 seam of coal which is ventilated by means of a furnace. One visit was made to this mine during the year and it was found idle and no inspection was made.

MILTON No. 3.

Is located at Wellston, Ohio, on the C. H. & D. R. R., and operated by the Milton Coal Co., Wellston, Ohio. W. B. Montgomery, Wellston, Ohio, is superintendent and G. D. Davis, of the same place mine boss. Shaft opening, 83 feet deep to the No. 2 seam, which is three feet thick. Ventilated by a fan and employs thirty-eight miners and thirteen day hands. Inspected once and ventilation was found deficient owing to the airway being closed up. The solid coal is about all worked out of this mine and pillars are being drawn. On August 18th was called to this mine to investigate the fatal accident which resulted in the death of Chas. Zimmerman who was killed by a fall of slate. Picks are used to mine the coal.

CRESCENT.

Is located on the O. S. R. R., and operated by the Crescent Coal Co., Jackson, Ohio. Jno. S. Jones, Jackson, Ohio, is superintendent and mine boss. Drift opening to the No. 2 vein which is about 30 inches thick. Furnace ventilation and employs twenty miners and six day hands. Inspected once during the year and found in good condition. Picks are used to mine the coal.

McKINLEY.

Is located on the O. S. R. R., and is operated by the McKinley Coal Co., McArthur, Ohio. Geo. Cundiff, McArthur, Ohio, has entire supervision. Drift opening to the No. 4 seam of coal which is about four feet in thickness. Ventilated by an open fire at bottom of the shaft. Twenty-five miners and six day hands are employed. One inspection was made and the mine found in good condition. Picks are used to mine the coal.

ALMA.

Is located at Glen Roy, Ohio, on the C. H. & D. R. R., and operated by the Alma Coal Coal Co., Glen Roy, Ohio. C. K. Davis, Glen Roy,

Ohio, is superintendent, and Frank Craggs is mine boss. It is a shaft opening 78 feet deep to the No. 2 seam of coal and is about three feet thick. Fan ventilation employing eighty-two miners and thirty-two day hands. Visited five times. This mine has been a source of annoyance the whole of the year, the ventilation being deficient at all times. October 3d, ordered this mine closed until there was a sufficient amount of ventilation on all entries. Picks are used to mine the coal.

STANDARD.

Is located at Glen Roy, Ohio, on the O. S. & C. H. & D. R. R., and operated by E. D. Jones, Jackson, Ohio. Dan C. Jones, Coalton, Ohio, has entire supervision. Shaft opening eighty-five feet deep penetrating the No. 2 seam of coal which is about three feet thick. A fan is the ventilating medium, and fifteen miners and five day hands are employed. Inspected three times during the year. On June 7th, the ventilation was found deficient owing to the airway being choked with slate. On July 1st ordered the mine to cease work until it was placed in good condition. Also requested safety catches attached to hoisting cages. On July 5th, the mine was found in an improved condition and it was permitted to resume operation. Picks are used to mine the coal.

LINDEMAN.

Is located at Ridgeland, Ohio, on the C. H. & D. R. R., and operated by the Lindeman Coal Co., Wellston, Ohio. L. W. Lindeman, Wellston, Ohio, has entire supervision. Drift opening, in to the No. 4 seam of coal and is about four feet in thickness. Natural ventilation and employs ten miners and two day hands. Inspected once and the mine found in first class condition. This a pick mine.

WILLS.

Is located three miles northwest of Coalton, Ohio, on the C. H. & D. R. R., and operated by the Wills Coal Co., Coalton, Ohio. Richard Wills, is superintendent, and Murray Leisure, Richland, Ohio, is mine boss. Drift opening to the No. 2 seam of coal, which is about forty inches thick. Furnace ventilation. One inspection was made during the year and found idle and no inspection was made.

STAR FURNACE.

Is located on the O. S. R. R., and is operated by the Star Furnace Co., Jackson, Ohio. Chas. Brown, Jackson, Ohio, is superintendent and Jno. Roberts, Jackson, Ohio, is mine foreman. Drift opening to the No. 1 seam of coal and is about thirty inches thick. A fan is used as a venti-

lating medium. Forty miners and 11 day hands are employed. Three inspections were made during the year. On September 9th and December 5th, the mine was found in very bad condition. The company was notified to place the mine in proper condition in ten days. On December 15th, the mine was found in an improved condition, the repairs that had been ordered on my previous visit having been complied with. Picks are used to mine the coal.

WELLSTON No. 3.

Is located at Wellston, Ohio, on the C. H. & D. R. R., and is operated by the Wellston Coal Co., Wellston, Ohio. W. B. Montgomery, Wellston, Ohio, is superintendent and Robert Pope of the same place is mine boss. Shaft opening penetrating the No. 2 seam of coal, which is here about four feet thick. Twenty-miners and ten day hands are employed. A fan is used as a ventilating medium. Twice inspected during the year and the mine found in good condition. Picks are used in mining the coal.

DOMESTIC.

Is located on the O. S. R. R., and is operated by the Domestic Coal Co., Wellston, Ohio. Peter Gallagher, Wellston, Ohio, is in charge of the mine. Shaft opening to the No. 2 seam of coal which is here about three feet thick. Fan ventilation is in use, and forty-one miners and twenty-one day hands find employment. Two inspections were made and the mine found in fair condition. Electric machines are used to mine the coal.

TOM CORWIN No. 1.

Is located on the C., H. & D. R. R., and is operated by the Tom Corwin Coal Co., Dayton, O. J. E. Harper, Glen Roy, O., is superintendent, and G. W. Welch of the same place is mine boss. Shaft opening, 100 feet in depth, to the No. 2 seam of coal, which is about three feet thick. Ventilated by means of a fan. Seventy-two miners and 43 day hands are employed. One inspection was made, and the mine found in fair condition. Picks are used in mining the coal. Motors operated by electricity are used for hauling the coal.

PRITCHARD & POOLE.

Is located near Glen Roy, O., on the H. V. R. R., and operated by Pritchard & Poole, Glen Roy, O. Henry Pritchard, Glen Roy, O., is superintendent, and Samuel Poole of the same place is mine boss. Drift opening, penetrating the No. 2 seam of coal, which is about 30 inches in thickness. A furnace is used as a ventilating medium, and 14 miners and four day hands are employed. One inspection was made during the year,

and the mine found in poor condition. A fan will be erected at this mine in the near future. The coal is mined by electrical machines.

PRICE.

Is located at Price Switch, on the O. S. R. R., and is operated by W. A. Gosline & Co., Toledo, O. J. E. Hurd, Jackson, O., is superintendent, and Arthur Mapes, Jackson, O., is mine boss. It is a drift opening, to the No. 2 seam of coal, and is about 30 inches thick. A furnace is used for ventilation, and 30 miners and 10 day hands are employed. This mine when inspected was found in good condition. Picks are used to mine the coal.

RIDGELAND.

Is located on the C., H. & D. R. R., and is operated by the Ridgeland Coal Co., Ridgeland, O. J. W. Jones, Wellston, O., is superintendent, and Wm. Harrison, Ridgeland, O., is mine foreman. Drift opening, penetrating the No. 4 seam. This mine was visited once and found idle, and no inspection was made.

NORTHERN.

Is located near Glen Roy, O., on the C., H. & D. R. R., and operated by the Northern Coal Co., Jackson, O., with Edwin Jones, Jackson, as superintendent, and Dan C. Jones as mine foreman. Shaft opening, to the No. 2 seam of coal, which is about three feet thick. Fan ventilation is in use. One inspection was made during the year, and the mine found in fair condition. Tested two pair of scales at this mine, and found them correct. The coal is mined by picks.

TIBBALS.

Is located on the O. S. R. R., and operated by the Tibbals Coal Co., Jackson, O. C. E. Tibbals, Jackson, O., is superintendent, and G. E. Lonberger, Jackson, is mine boss. This is a drift opening, to the No. 1 seam, which is about three feet thick. Furnace ventilation is in practice, and 30 miners and 11 day hands are employed. Two inspections were made during the year. On August 3 the ventilation was found deficient, owing to a squeeze on the south entry closing the airway. On September 26 the mine was found in an improved condition. Picks are used to mine the coal.

JACKSON HILL.

Is located on the Springfield Switch, on the O. S. R. R., and is operated by the Emma Coal Co., Jackson, O. E. D. Jones, Jackson, O., is superintendent, and J. D. Richards, Jackson, O., is mine boss. Drift opening, penetrating the No. 2 seam, which is about three feet thick. Furnace ventilation is in use, and 73 miners and 27 day hands are

employed. On August 31 the ventilation was found deficient, owing to the doors and brattices being in need of repair. Ordered these repaired at once. On September 20 found the repairs had been made, and the mine in fair condition. Picks are used to mine the coal.

COMMERCIAL.

Is located near Madison, O., on the C., H. & D. R. R., and is operated by the Commercial Coal Co., Jackson, O. S. L. Hinkle, Jackson, O., is superintendent, and C. E. Wiseman, Remple, O., is mine boss. Drift opening, to the No. 5 seam of coal, which is 28 inches in thickness. A furnace is used as a ventilating medium, and 20 miners and five day hands are employed. Two inspections were made during the year, and the mine found in fair condition. Picks are used to mine the coal.

BUCKEYE.

Is located on the C., H. & D. R. R., and operated by the Buckeye Coal Co., Coalton, O. Elmer Sell, Coalton, O., is superintendent, and L. S. Rawlins, Byers, O., is mine foreman. Drift opening, to the No. 2 seam of coal, which is about three feet thick. Furnace is used as a ventilating medium. Thirty miners and 21 day hands are employed. One inspection was made during the year, and the mine found in fair condition. Picks are used to mine the coal.

LAWRENCE COUNTY.

IRISH HOLLOW.

Is located at Black Fork, O., on the B. & O. S.-W. R. R., and is operated by the Black Fork Coal Co., Black Fork, O. Chas. Rogers, Black Fork, O., is superintendent, and W. H. Wykel, Jackson, O., is mine boss. Drift opening, to the No. 5 seam of coal, which is about three feet thick. A furnace is used to ventilate the mine, and 45 miners and 32 day hands are employed. Inspected twice during the year. On December 16 the ventilation was found deficient, owing to the irregularities of the break-throughs, and the mine boss was requested to inaugurate a system of check doors and break-throughs, or it would be necessary to enforce the mining laws governing such cases. Electric machines are used to cut the coal.

KELLEY.

Is located at Ironton, O., and is operated by the Kelley Iron & Nail Co., Ironton, O. Conrad Klein is both superintendent and mine boss. Drift opening, to the No 5 seam of coal, which is about three feet thick,

and has furnace ventilation. Twenty-eight miners and six day hands are employed. The Kelley Nail Mill consumes the entire output of this mine. Inspected once, and found in fair condition. Picks are used to mine the coal.

IRONTON CEMENT.

Is located at Ironton, O., and is operated by the Ironton Portland Cement Co., Ironton, O. Albert Steece, Ironton, O., is superintendent, and F. R. Kitchen of the same place is mine boss. Drift opening, to the No. 5 seam of coal, which is about 30 inches thick and is ventilated by a fan. Thirty-one miners and six day hands are employed. One inspection was made and the ventilation found deficient, owing to the doors and brattices being in need of repairs. Picks are used to mine the coal.

HALLS.

Is located at Moulton, O., on the C., H. & D. R. R., and is operated by the Hall Coal Co., Dayton, O. Edward Brohard, Jep P. O., O., is both superintendent and mine boss. It is a drift opening, to the No. 4 seam of coal, which is about three feet thick. Furnace ventilation is in use, and 28 miners and eight day hands are employed. Inspected once, and condition fair. Picks are used to mine the coal.

COBB NO. 2.

Is located near Aetna, on the Iron R. R., and is operated by the Halley Coal Co., Pedro, O. Dave Halley, Pedro, O., is superintendent, and Jno. Jones, Pedro, O., is mine boss. Drift opening, to the No. 5 seam, which is about three feet thick. Furnace ventilation, and 22 miners and six day hands are employed. Two inspections were made. On August 12 the mine was found in fair condition, and on December 13 the ventilation was found deficient, owing to the absence of check doors on room necks. Picks are used to mine the coal.

GINN.

Is located on the Iron R. R., and is operated by the Ginn Coal Co., Ironton, O. C. S. Ginn, Ironton, O., is superintendent, and Jno. Bernard, La Grange, O., is mine foreman. Drift opening, to the No. 5 seam of coal, which is about three feet thick. A furnace is used as a ventilating medium. Thirty-eight miners and 11 day hands are employed. Two inspections were made during the year. On August 11 the mine was found in fair condition. On December 14 the ventilation was found deficient, owing to the break throughs being closed with slate. All miners who were not supplied with air within sixty feet of the working faces were ordered to cease work and the management was requested to place the mine in proper condition. The coal is mined with picks.

COBB No. 3.

Is located at Aetna, on the Iron R. R., and is operated by the Halley Coal Co., Pedro, O. Dave Halley, Pedro, O., is superintendent, and Edw. Compliment, Pedro, O., is mine boss. Drift opening, to the No. 5 seam of coal, which is about three feet thick. A furnace is in use as a ventilating medium. Forty-five miners and 11 day hands are employed. Inspected four times during the year. On August 30 and December 7 the ventilation was found deficient, owing to impaired stoppings and the irregular firing of the furnace. The mine boss was given five days to place the mine in proper condition. On December 13 the mine was found in an improved condition, the repairs which were ordered on former visits having been complied with.

NEW CASTLE.

Is located about three miles north of the Ohio River, at the terminus of a short railway running from the company's furnace at Hanging Rock, and is operated by the Hanging Rock Iron Co., Hanging Rock, O. D. B. Meachan is superintendent and Hugh Shields is mine boss. Visited once and found idle, and no inspection was made.

CLARION No. 4.

Is located at Black Fork, O., on the B. & O. S.-W. R. R., and operated by the Black Fork Coal Co., Black Fork, O. Chas. Rogers, Black Fork, O., is superintendent and W. L. Brady is mine boss. The mine consists of two drift openings, into the No. 4 seam of coal, which is about four feet thick, ventilated by a furnace, and employs 60 miners and 17 day men. Two inspections were made during the year, and the mine found in fair condition, with the exception of the No. 2 north entry, on the west side. Ordered the mine boss to cease work on this entry until it was placed in an improved condition. The coal is mined with picks.

LAWRENCE MILL.

Is located near Vesuvius, on the Iron R. R., and operated by the Halley Coal Co., Pedro, O. Dave Halley, Pedro, O., is superintendent and Wm. Day of the same place mine boss. Drift opening, to the No. 5 seam of coal, which is about three feet thick. Three inspections were made. The mine is poorly ventilated, from the fact that it is all pillar work, and the mine will soon be abandoned.

PORTLAND CEMENT.

Is located at Ironton, O., and is operated by the Ironton Portland Cement Co., Ironton, O. E. L. Lambert is both superintendent and mine

boss, whose postoffice address is Ironton, O. This is a drift opening, penetrating a seam of limestone, which is about seven feet thick. One inspection was made during the year, and found in fair condition. The mine is ventilated by natural pressure. Twenty-three miners and four day hands are employed.

GALLIA COUNTY.

BLACK DIAMOND.

Is located near Gallia Furnace, on the C., H. & D. R. R., and is operated by the Black Diamond Coal Co., Gallia, O. W. R. Edwards, Gallia, O., is superintendent and Wm. Trainer of the same place is mine boss. This is a drift opening, to the No. 6 seam of coal. Seventeen miners and seven day hands are employed. This mine was visited once and found idle, and no inspection was made. Picks are used to mine the coal.

SCIOTO COUNTY.

EIFORT.

Is located at Eifort, O., on the B. & O. S.-W. R. R., and is operated by Morgan & Horton, Eifort, O. W. H. Horton, Eifort, O., is superintendent and Edw. Queen of the same place is mine boss. Drift opening, penetrating the No. 4 seam, which at this point is about 28 inches thick; is ventilated by a furnace, and employs 22 miners and six day hands. Inspected once during the year, and the mine found in very poor condition. Ordered the doors repaired and the stack built higher at the furnace, in order to increase the volume of air.

SECOND DISTRICT.

D. H. WILLIAMS, INSPECTOR.

ATHENS, MEIGS, WASHINGTON AND NOBLE.

HON. GEORGE HARRISON, *Chief Inspector of Mines, Columbus, Ohio.*

DEAR SIR:— In compliance with the custom of the Mining Department, I herewith submit to you my annual report of the visits made, scales tested, improvements ordered, and the number of fatal accidents which occurred in my district during the time covered by this report which is from November 15th, 1903 to January 1, 1905. This district is composed of the Counties of Athens, Meigs, Washington, and a portion of Gallia.

With but few exceptions the mines of this district were found in good condition. All of the large mines and a number of the small ones are equipped with electrical machinery and up-to-date devices for handling and mining the coal.

I have made two hundred and sixty-five (265) visits to the mines in this district during the time covered by this report, two (2) in the Number One, nine (9) in the Number Three which were at the request and upon the advice of the Chief Inspector. These were made in company with the Inspector of these respective districts. Fifty-eight sets of scales were tested, and with the exception of seven (7), all were found weighing correctly.

It is with regret that I am compelled to report eleven (11) fatal accidents which occurred in my district due to various causes incident to the production of coal. The average time worked by the miners of the Hocking and Sunday Creek Valley during the year was about two-thirds, due to insufficient trade to keep the mines in full operation. The mines in Meigs County were suspended from April 1st until September 1st on account of a strike, a dispute arising over the scale made for 1904 and in operation until April 1st, 1906. The dispute was compromised satisfactory to the miners. The majority of the mines in this locality being River mines, they lost about one-half time on account of the river being too low for shipment.

The mines of Athens County consist in the main part of shaft openings mining the Number Six seam of coal, which is found at a depth of from seventy-five (75) to three hundred and fifty (350) feet. The number Seven seam of coal is found in paying quantities in the different portions of the county, and is about five (5) feet in thickness. It is found in the hills of York and Trimble townships; the Number Eight seam is found only in Berne Township, which is eight feet thick and separated in the center by stratas of gray slate from nine to eighteen inches thick. The coal fields of this county are almost all taken up by different coal companies with the exception of some lying in the southeastern corner of the county. The coal fields of Gallia and Meigs counties consist for the most part of the Number Eight seam which is five feet in thickness, but is not separated by any other stratas. This field is mostly undeveloped excepting that which fronts on the Ohio River.

There are several practices in my district to which I would like to call the attention of those desiring to place their mines in the best condition possible and from which the best results can be obtained. One of the most important is that of the method of closing breakthroughs, which is a matter of a very serious annoyance, and rather a monotonous duty imposed upon me as the District Inspector to have to offer the same complaint and make the same request respecting same every time a mine is inspected. Some of the mining companies in this district use what are known as gob stoppings in breakthroughs between entries, which is usually found in a settled condition from the top and permeated with holes at the bottom made by rats and mice, while other companies use lumber which it is necessary to plaster with clay around the edges in order to make them air tight. This clay material is always found in a dried and cracked condition and usually drops off causing the mine to be poorly ventilated from the stoppings being out of repair. These conditions cause companies to be at a constant expense repairing them from time to time. Another objection to this method of closing breakthroughs is, that in case of a mine being on fire, which is no common occurrence, they simply aid the fire in spreading from one entry to another, which in many instances is difficult to cut off or enclose.

As an improvement to this method of closing the breakthroughs now so universally in use, I would suggest, and can heartily recommend, brick stoppings, as I have seen their practicability demonstrated in one of the mines (number 266) owned and operated by the Continental Coal Co., Columbus, Ohio. Brick stoppings have been built between M. & D. north entries, being of one brick in thickness, which is four inches. These are giving perfect satisfaction without any additional expense after the first cost of building. They are always found in good condition and with but little more expense than gob or lumber stoppings. In my opinion it would pay the coal companies to investigate this matter and make an estimate of the amount of money expended from time to time in making repairs of stoppings which are more or less in need of constant repair.,

A subject that should also be given some serious consideration in this district is that of mine fires, which are of more or less frequent occurrence, and as a safe-guard against unforeseen calamity I would suggest that in mines where gas is known to generate, a competent person be employed to visit the working places after the mine has ceased operation to see that no fires remain or are left burning from shots that have been fired.

In conclusion I wish to say that the time covered by this report has not been a very prosperous one from the miner's standpoint, but hope the outlook for the coming year will have a brighter view.

In submitting my report I wish to heartily thank the miners and operators of this district for their kind and courteous treatment and Mr.

E. G. Biddison, who occupied the position of Chief of the Department during the first five months covered in this report and to you for the assistance and kind criticism which has aided me so much to perform the duties devolving upon me.

Very respectfully yours,

D. H. WILLIAMS,

Inspector Second Mining District.

Glouster, Ohio, January 1, 1905.

ATHENS COUNTY.

No. 266.

Is located two miles northwest of Glouster, Ohio, on a branch of the T. & O. C. R. R., and is operated by the Continental Coal Co., Columbus, Ohio. This is a shaft 90 feet deep into the No. 6 seam of coal, which is six feet in thickness, worked on the triple entry system, and is ventilated by a fan. C. Andrews, Glouster, Ohio, is superintendent, and J. Goulding of the same place is mine boss. One hundred and fifty (150) miners and forty-two day hands are employed. This mine was suspended about six months during the year, the cause assigned being that no cars could be secured. On December 26th, and February 2d, it was found idle, and on March 3d was found in fair condition with the exception of the west side, where the volume of air was not sufficient. On August 23d requested the company to complete the installation of the fan which was in progress of erection as the volume of air was insufficient. On December 23d the mine was again found idle and no orders for coal assigned for the cause.

No. 267.

Is located on a switch of the T. & O. C. R. R., three miles northwest of Glouster, and is operated by the Continental Coal Co., Columbus, Ohio. Jno. Roberts, Glouster, Ohio, is superintendent and Isaac Jones of the same place is mine boss. This is a slope about 450 feet in length to the No. 6 seam of coal which is about six feet in thickness; worked on the triple entry system and is ventilated by a fan. One hundred and sixty (160) miners and 51 day hands are employed. Four inspections were made during the year. May 27th, July 18th, August 25th and December 22d, and on all four visits the mine was found in good condition.

No. 311.

Is located at Oakdale on the C. S. & H. R. R., and is operated by the Continental Coal Co., Columbus, Ohio. Edw. Mauer, Glouster, Ohio, is superintendent and mine foreman. It is a shaft 90 feet in depth to the No. 6 seam of coal which is about six feet thick, worked on the double entry system, ventilated by a fan and employs 110 miners and forty day hands and fourteen cutters. Electric machines are used to cut the coal which is hauled to the bottom of the shaft by a motor. Seven visits were made to this mine. On February 2d the mine had been suspended for some time and had just commenced operations on that day. On March 14th tested one set of railroad scales and found them weigh-

ing accurately. On April 7th, the mine was found idle and no inspection made. On May 14 it was found that the mine was on a local strike and no inspection was made. On June 7th found in good condition. On August 8 tested one set of railroad scales and found them accurate. On October 1st mine found in good condition, and on December 23d was found idle. Inspected the traveling way where some bad roof was found and requested the same made safe.

No. 254.

Is located at Jacksonville, Ohio, on the T. & O. C. R. R., and is operated by the Continental Coal Co., Columbus, Ohio. Dan McBryde, Glouster, Ohio, is superintendent and mine boss. Shaft opening 110 feet deep to the No. 6 seam of coal worked on the double entry plan and is ventilated by means of a fan. The coal is mined by electricity and brought to the bottom of the shaft by rope haulage. It employs 160 miners, sixteen cutters and forty-six day men. On December 21st, the mine was found in good condition. The mine was suspended from February 25th until the 30th day of August, the cause of the shut down not being known. Found in fair condition on August 30th.

VINTON COUNTY.

CORNELIA No. 1.

Is located on the O. S. R. R., and is operated by the Cornelia Mining Co., Wellston, O. Carl Goddard, Wellston, O., is superintendent, and Jacob Martin, Wellston, O., is mine boss. Shaft opening, 70 feet deep, to the No 4 seam of coal, which is about four feet thick. A fan is in use as a ventilating medium. Thirty-seven miners and 17 day hands are employed. Two inspections were made during the year. On July 7 the ventilation was found deficient and ordered the mine closed, and requested the management to place the mine in proper condition. Also requested the manway repaired. On the second visit the mine was found in an improved condition, the orders issued on my former visit having been complied with, and the mine permitted to resume operation. Electric machines are used to mine the coal.

STAR No. 2.

Is located at Haws, on the H. V. R. R., and is operated by Keck Bros., McArthur, O. E. W. Keck, McArthur, O., is superintendent, and

Chas. Keck, Hawks, O., is mine boss. Drift opening, penetrating the No. 4 seam of coal, which is about four feet thick. Twenty-five miners and 10 day men are employed. Two inspections were made during the year. On June 6 the ventilation was found deficient, being ventilated by natural pressure. I suggested that a furnace be built. On July 14 the mine was found in an improved condition, a furnace having been built. The coal is mined by picks.

CLARION:

Is located at Clarion, O., on the H. V. R. R., and is operated by the Clarion Mining Co., Clarion, O. A. Archabal is superintendent and Adam Miller of the same place is mine boss. Is a drift opening, to the No. 4 seam of coal, which is here four feet thick, and is ventilated by means of a fan. Seventy-five miners and 16 day hands are employed. Two visits were made during the year. On July 15 the mine was found idle, and no inspection was made. On October 17 the mine was inspected and found in first-class condition. This is the best ventilated mine in this district.

MOHR & MINTON.

Is located at McArthur, O., on the H. V. R. R., and is operated by the Mohr & Minton Coal Co., McArthur, O. Chas. Westcott, McArthur, O., is superintendent, and Earl Dixon of the same place is mine boss. Is a drift opening, into the No. 3 seam of coal, which is here from four to six feet thick. A furnace is used to ventilate the mine. Eighty-four miners and 23 day hands are employed. This mine is worked in a haphazard manner, having no system in its entirety. Three inspections were made during the year. On July 12 it was found in fair condition. A large creep occurred at this mine, closing up eight rooms on No. 1 entry. On October 26 the ventilation was found deficient, owing to the doors and brattices being in need of repairs. On October 12 the mine was found in an improved condition.

ALMA CEMENT.

Is located at Oretton, O., on the H. V. R. R., and is operated by the Alma Cement Co., Oretton, O. Oren Kelley, Oretton, O., is superintendent and J. J. Sharp of the same place is mine boss. This mine is a drift opening, into the No. 4 seam of coal, which is from three to four feet in thickness. Furnace ventilation, and employs 27 miners and 13 day hands. On July 13 and August 4 the ventilation was found deficient. Orders were given to cease working until it was ventilated in a proper manner. On August 6 this mine was found in an improved condition, previous orders having been complied with, and the mine was permitted to resume operations. The coal is cut and hauled by electric power. Three inspections were made during the year.

WARREN JONES.

Is located at Zaleski, O., on the B. & O. S.-W. R. R., and owned and operated by Warren Jones Coal Co., Wellston, O. C. N. Jones, Wellston, O., is superintendent, and Geo. Cavanaugh, Zaleski, O., is mine boss. This mine is a drift opening, penetrating the No. 4 seam of coal, which is about three feet thick, and is ventilated by a furnace. Forty-four miners and 13 day hands are employed. Two inspections were made during the year. On October 25 the ventilation was found deficient, owing to the airways and break-throughs being blocked with slate. On November 30 the mine was found in an improved condition, but there is room here for more improvements.

TRACE.

Is located at Zaleski, O., on the B. & O. S.-W. R. R., and is operated by the Avenell Coal Co., Zaleski, O. Chas. Trace, Zaleski, O., is both superintendent and mine boss. This mine is a drift, to the No. 4 seam of coal, which is about four feet thick. Fan ventilation is in use, and 41 miners and 14 day hands are employed. Two inspections were made during the year. On October 25 this mine was found in bad condition and orders were given for doors to be hung between Nos. 1 and 2 east entries and other necessary repairs to be made. On November 30 the mine was found in good condition, the orders given on my previous visit having been complied with. The coal is mined by electric machinery.

ELK FORK.

Is located at Elk Fork, O., and is situated on the H. V. R. R., and operated by the Elk Fork Coal Co., Elk Fork, O. W. P. Porter is superintendent and C. A. Ruff, Elk Fork, O., is mine boss. This mine is a shaft opening, 95 feet deep to the No. 2 seam, which is here about three feet thick. Fan ventilation, and employs 48 miners and 17 day hands. Three visits were made during the year. On July 11 it was found idle and no inspection was made. On October 26 I was called to this mine to investigate the cause of the death of Bert Brennan, who was killed by falling off an ascending cage. On November 12 this mine was inspected and found in fair condition, and another outlet was ordered made. Electric machines are used to mine the coal.

RACCOON VALLEY.

Is located at Minerton, O., on the H. V. R. R., and operated by J. L. Lawler, Minerton, O. J. L. Lawler is superintendent and E. G. Lawler of the same place is mine boss. This mine is a drift opening, to the No. 4 seam of coal, which is about four feet thick. Fan ventilation, and

employs 26 miners and 10 day hands. One inspection was made during the year, and conditions good at this time. Electric machines are used to mine the coal, which is hauled to the tippie by a motor.

INGHAM.

Is located at Mineral, O., on the B. & O. S.-W. R. R., and is operated by the Ingham Coal Co., Mineral, O. David Armstrong, Jackson, O., is superintendent, and Jas. Gascoyne, Mineral, O., is mine boss. Drift opening, to the No. 6 seam of coal, which is about 28 inches thick. Ventilated by a furnace, and employs 27 miners and 10 day hands. Inspected twice during the year. On November 11 this mine was found in very bad condition, and the mine boss was given six days to ventilate the mine in a proper manner. On November 18 the mine was found in an improved condition. Electric machines of the Morgan-Gardner type are used for mining the coal.

No. 275.

Is situated at Chauncey, on the K. & M. R. R., and is operated by the Continental Coal Co., Columbus, O. H. W. Penrod, Chauncey, O., is superintendent, and C. L. Foraker, Glouster, O., is mine boss. Shaft, 125 feet in depth, to the No. 6 seam of coal, which is about six feet thick. This mine is worked partially on the triple entry system, and a fan is used as a ventilating medium. The coal is mined and hauled by electricity, and 150 miners, 14 cutters and 62 day men find employment. On February 17 the mine was found idle on account of no cars, and on April 8 was again found idle, and no inspection was made. On June 27 tested set of railroad scales, which was found correct. On July 12 and December 27 the mine was found in good condition.

No. 252.

Is located one and one-half miles north of Glouster, O., on the T. & O. C. R. R., and is operated by the Continental Coal Co., Columbus, O. D. S. Williams, Jacksonville, O., is superintendent, and Jno. Eddy, Trimble, O., is mine boss. Shaft opening, 100 feet deep, to the No. 6 seam of coal, which is six feet in thickness. A fan is used as a means of ventilation. Electric machines are used to mine the coal, which is brought to the bottom of the shaft by the same power, and employs 160 miners, 18 cutters and 44 day men. On December 26 mine found idle, no cars. February 23 and 24 found in good condition, also on April 20. On May 10 tested two sets of railroad scales and found them incorrect. Tested again on May 25, and found accurate. On June 15 mine was found in good condition. July 14 inspected an oil well that was drilled down through the mine, which had been reported in bad condition. Found both


the oil well and gas well in good condition, contrary to report. On August 24 mine found in good condition, and also on October 12. On October 13 tested two sets railroad scales, which I found weighing 150 pounds against the miner. On October 22, by request of miners, visited the mine for the purpose of ascertaining whether the scales had been adjusted, and found them in the same condition as on my visit to this mine on October 13. Requested them made accurate at once. On November 1, by request of miners, visited the mine to inspect the scales, and found them weighing 300 pounds against the miner on the last bearing, and requested the company to secure the services of an expert scale man. On November 3 was called to this mine to investigate the fatal accident resulting in the death of Chas. Love.

No. 256.

Is located at Glouster, O., on the T. & O. C. R. R., and is operated by the Continental Coal Co., Columbus, O. D. S. Williams is superintendent. Shaft opening, 90 feet in depth, to the No. 6 seam of coal, which is six feet thick. The coal is cut and hauled by electricity, and the mine worked on the triple entry system, employs 225 miners, 65 day men and 18 cutters. A fan is used to ventilate the mine. On February 10 and 11 the mine was found in good condition, also on August 9 and 10. On July 6 visited to inspect the traveling-way around the bottom of the shaft. On May 19 called to this mine to investigate the death of Mervil Creachbaum, a driver, hauling coal on the sixth entry and met death by falling in front of his trip of cars. Entry and track was in good condition. On August 11 the mine was found idle, no cars. On August 24 tested two sets railroad scales, which I found correct, and on October 11 the mine was suspended.

No. 281.

Is located two and one-half miles west of Jacksonville, O., on the K. & M. R. R., and is operated by the Continental Coal Co., Columbus, O. Mel Rob, Athens, O., is mine foreman. Shaft, 125 feet in depth, worked on the triple entry system, and is ventilated by a fan. One hundred miners 47 day men and 14 cutters find employment. On February 22 and April 15 the mine was found idle. On May 21 found the north side of the mine in bad condition, the system of doors and brattices being bad. Requested the same placed in better condition at once. One June 21 tested two sets railroad scales, found them correct. On June 24 inspected the place where Lewis Pruiski met his death, being killed by a fall of coal. On June 29 called to this mine to investigate the fatal accident and inspect the place where Jos. Truiskie was killed by explosion of a shot before he was able to make the proper distance from same. On November 5 mine found in good condition.



No. 255.

Is located two and one-half miles southwest of Jacksonville, O., on the K & M. R. R., and is operated by the Continental Coal Co., Columbus, O. Mel Robb, Athens, O., is mine foreman. Shaft, opening to the No. 6 seam of coal, and is 155 feet deep. The coal is here 6 feet in thickness. The mine is worked on the triple entry system, and ventilated by a fan. The coal is cut by electric machines; the mine being new, the coal is hauled by horses. On February 22 the mine was found idle, and on May 28 and August 30 found in good condition.

No. 205.

Is located one and one-half miles southwest of Nelsonville, on the C., H. V. & T. R. R., and is operated by the Continental Coal Co., Columbus, O. Val Cox, Nelsonville, O., is superintendent, and Jno Hughes of the same place mine boss. Slope opening, to the No. 6 seam of coal, which is about six feet thick, worked on the double entry system, and ventilated by a fan. The mine is equipped with rope haulage, and the coal is mined with machines operated by compressed air. One hundred and seventy (170 miners), 18 cutters and 63 day men are employed. On February 15 was called to investigate the death of Chas. Rizer, who was killed in No. 1 room, on the east entry, by a fall of slate. On March 7 mine was suspended, and on July 20 tested the railroad scales, which were found correct. On September 22 mine found in good condition, with the exception of the rooms on the seventh east entry, which were without ventilation, and requested them to cease operations until they were properly ventilated.

No. 203.

Is located near Floodwood, on the C., H. V. & T. R. R., and is operated by the Continental Coal Co., Columbus, O. Hugh Mallen, Kimberly, O., is superintendent. This is a drift opening, to the No. 6 seam, which is about six feet thick. Double entry system is in use, and a fan is the ventilating medium. The coal is cut and hauled by electricity. On March 8 the mine was found idle. On August 2 and November 10 found in good condition. Also tested a set of tipple scales on the last named date, and found them weighing accurately.

No. 201.

Is located at Floodwood, on the C., H. V. & T. R. R., and is operated by the Continental Coal Co., Columbus, O. Jno. Lax, Nelsonville, O., is superintendent. Shaft opening, 70 feet in depth, to the No. 6 seam of coal, which is about six feet thick. The triple entry system is in practice, and a fan is the ventilating medium. The coal is cut and hauled by elec-



Mine No. 255, Owned by the Continental Coal Co., Columbus, O. Located at Jacksonsville, O., on the K. & M. R. R.
See description on page 207.

tricity. One hundred and fifty (150) miners, 60 day men and 16 cutters are employed. On November 23 the mine was found idle, on account of the traveling-way being filled with water. On March 8 the mine was found idle, no cars. On August 3 mine found in good condition. On October 19, by request of the mine committee, tested set of railroad scales and found them weighing 200 pounds in favor of the miners on the last two bearings.

KIMBERLY NOS. 1, 7 AND 8 MINES.

Are located at Boyle's Crossing, on the C., H. V. & T. R. R., and are operated by the Continental Coal Co., Columbus, O. Hugh Mallen is superintendent and Chas. Monks is mine boss. These are drift openings, into the No. 6 seam of coal, which varies in thickness from three to five feet, the rock coming down cutting the coal almost out in some parts of the mine. No. 1 is the principal opening, and is ventilated by a fan; Nos. 7 and 8 are now ventilated by means of a furnace, as they are both connected as one mine insofar as the ventilation is concerned. No. 1 employs 12 miners and 2 inside men, while Nos. 7 and 8 employ 70 miners and 30 day men. The coal is cut and hauled by electric power, and is dumped over one tipple. On December 2 tested the scales and found them correct. On February 16 mine was closed down. On July 22 No. 8 was found without air, and requested a furnace put in as soon as possible. On October 21 Nos. 7 and 8 were found in good condition, the furnace requested on July 22 having been completed, ventilating both the No. 7 and No. 8, as they were connected on the one current. On December 29 all three mines were found in good condition. One set of railroad scales tested, and found correct.

No. 10.

Is located at Derthick, O., on a branch of the T. & O. C. R. R., and is operated by the Sunday Creek Coal Co., Columbus, O. Jno. F. Roberts, Corning, O., is superintendent, and Ed Lynch, Derthick, O., is mine boss. Shaft opening, 110 feet in depth, to the No. 6 seam of coal, worked on the doubly entry, and ventilated by a twenty-foot fan. The coal is here about six feet in thickness. Electric machines mine the coal, which is hauled to the bottom by the same power. It employs 210 miners, 18 cutters and 60 day men. On January 10 the south side was found in bad condition, due to the air course being partially closed by a squeeze. Requested that the fifth west entry be used as an inlet to that part of the mine. On February 8 mine was idle, no cars. On February 25 found in good condition. On June 13 south side was in good condition. On June 23 investigated the accident which resulted in the death of Jerry Johns, who met death by falling accidentally into the sump, which was about seven feet deep. On July 18 mine was idle, and on November 11 found in good condition.

No. 10 X.

Is located at Orbiston, on the C., H. V. & T. R. R., and is operated by the Sunday Creek Coal Co., Columbus, O. W. B. Burnell, Orbiston, O., is superintendent. It is a slope opening, worked on the double and triple entry system, and is ventilated by a fan. It penetrates the No. 6 seam of coal, which is six feet in thickness. This mine is equipped with chain and motor haulage, and machines operated by electricity are used in mining the coal. Two hundred and forty miners, 66 day men and 18 cutters are employed. On May 26 tested one set of railroad scales, which were found accurate. On July 13 found the volume of air insufficient, and requested the velocity of the fan increased in order to supply an adequate amount of ventilation. All other conditions were fair. On August 9 tested a set of scales and found them inaccurate, and weighing in favor of the company. On November 2 the mine was found in fair condition, with the exception of room No. 44, on the ninth east entry. This was stopped until break-through was made. On December 19 the west side was found in bad condition, and requested some changes made in the air courses. One set of railroad scales were tested, and found correct.

JUNIPER No. 3.

Is located near Buchtel, on the C., H. V. & T. R. R., and is operated by A. J. Juniper & Sons, Nelsonville, O. It is a drift opening, to the No. 6 seam of coal, which is about six feet thick. The double entry system is in use, and a furnace is the ventilating medium. The coal is cut by electric power, and hauled to the tippie by a small locomotive engine. Seventy-seven miners, 20 day men and 8 cutters are employed. On January 5 was called to this mine to investigate the cause of the death of Zeke Gibson, who was killed by a fall of top coal. On June 28 the mine was in fair condition, and on July 13, by request of the mine committee, visited the mine, but it was found idle and no inspection was made. On September 20 the mine was found in fair condition, but the miners complained about the furnace not being fired up in the morning. I requested that the furnace be fired before the miners were allowed to enter the mine.

IMPERIAL No. 1.

Is located four miles southeast of Nelsonville, O., on the C., H. V. & T. R. R., and is operated by the Imperial Coal Co., Columbus, O. Zeth Williams, Columbus, O., is superintendent and J. A. Murphy, Nelsonville, O. is mine boss. Slope opening, to the No. 6 seam of coal, which is six feet thick, worked on the double entry system, and is ventilated by a fan. The mine is equipped with chain and motor haulage, and employs 167 miners, 35 day men and 16 cutters. On June 30 one set of tippie scales were tested and found correct. Also one set of railroad scales,

which were found weighing accurately. On August 4 the railroad scales were tested and found inaccurate. On October 20 the mine was found in good condition.

MAPLE HILL.

Is located about three miles east of Nelsonville, O., on the C., H. V. & T. R. R., and is operated by the Maple Hill Coal Co., Nelsonville, O. Joshua Spencer, Nelsonville, O., is superintendent and Jas. Moors of the same place is mine boss. Drift opening, to the No. 6 seam of coal, which is about seven feet thick. The doubly entry system is in operation, and a fan ventilates the mine. The coal is mined by the use of electric machines and rope haulage system. It employs 120 miners, 30 day men and 14 cutters. On January 6, during the inspection of this mine, the steam pipe leading from the boilers to the fan engine was found to be leaking, causing the fan to be only half speeded. Under the circumstances the inspection was not a satisfactory one. On July 15 the mine was found in fair condition, and on December 16 was found in bad condition, on account of the fan not being speeded to its full capacity. Requested a larger engine and the fan speeded to its capacity within a reasonable time.

NEW YORK NO. 1, OR HALBERT.

Is located at West Floodwood, on the C., H. V. & T. R. R., and is operated by the New York Coal Co., Columbus, O. Page Morris, Nelsonville, O., is superintendent and E. Shaffer of the same place is mine boss. Drift opening, to the No. 6 seam of coal, which is from three and one-half to five feet in thickness, worked on the double entry system, and ventilated by a furnace. Electric machines cut the coal, and 80 miners, 28 day men and 12 cutters find employment here. On July 21 the old side was found in bad condition on account of being cut off from the fan by a squeeze. Requested an airshaft sunk to remove the cause. The new side was found in fair condition. On September 21 found the new side shut off from the inlet coming from the old mine. Requested the air course opened up at once and a furnace installed to assist the fan. On November 4 the first and second west entries were found in bad condition, due to bad brattices. Found the airshaft sunk for the old side.

WELLS.

Is located near Baileys Mills, crossing on the C., H. V. & T. R. R., and is operated by A. J. Wells, Kimberly, O., who is superintendent of the mine. It employs 22 miners and three day men. On August 3 was called to the mine to test a set of tipple scales, which were found correct. The mine was inspected and found in bad condition, there being no artificial means of ventilation; requested a fire-basket in the airshaft at once. On September 23 found former request complied with, and the mine in

fair condition. On December 28 was called to test one set of tippie scales, which were found correct. This is a pick mine.

SILCOTT, OR WEST FLOODWOOD.

Is located at West Floodwood, on the C., H. V. & T. R. R., and is operated by Geo. Silcott, Nelsonville, O. This is a pick mine, with furnace ventilation, the coal being hauled by animal power. Twenty-four (24) miners and five day men are employed. On July 22 mine was found idle, and on September 23 found in fair condition. A new airshaft has been sunk and a new furnace built.

DOANVILLE No. 1.

Is located at Doanville, O., on the C., H. V. & T. R. R., and is operated by the C. & H. C. & I. Coal Co., Columbus, O. Frank Culley, Doanville, O., is superintendent. This is a slope opening, to the No. 6 seam, which is six feet in thickness. The double entry system is in use, and fan ventilation. The mine is equipped with rope haulage, and machines operated by electricity cut the coal. On January 6 mine was idle, and no inspection made. On June 28 was again found idle; on July 12 was again found idle. This mine lost considerable time during the year. On August 4 and December 15 the mine was in good condition. One hundred (100) miners, 60 day men and 14 cutters are employed.

DOANVILLE No. 1 A.

Is located at Doanville, and operated by the same company as the Doanville No. 1. Drift opening, to the No. 7 seam of coal, which is about four feet thick, and worked on the double entry plan, with furnace ventilation. Frank Culley is superintendent. Seventeen (17) miners and five day men are employed.

VICTOR No. 3.

Is located three and one-half miles north of Athens, on the C., H. V. & T. R. R., and is operated by Johnson Coal Mining Co., Columbus, O. J. W. Taylor, Athens, O., is superintendent. Shaft opening, to the No. 6 seam of coal, and is 179 feet deep. The coal is six feet in thickness, operated on the triple entry plan, and is ventilated by a fan. Electric machines cut the coal. This is a new mine, just opened up during the year. At this time it only employs 45 miners, 15 day hands and 4 cutters. On October 19 was my first visit to the mine, and it was found in good condition. Considerable gas was found, but was well taken care of by the managers of the mine.

No. 23.

Is located at Trimble, O., on the K. & M. R. R., and is operated by the Hisylvania Coal Co., Trimble, O. J. W. Blower, Trimble, O., is superintendent and E. Blower of the same place mine boss. Slope opening, to the No. 6 coal, and is about six feet in thickness; worked on the double entry plan, and has fan ventilation. The mine is equipped with rope haulage and electric mining machines, and employs 70 miners, 30 day men and 12 cutters. On December 22 the mine was in fair condition, and on May 2 the brattices were in bad condition. Requested the same repaired at once. On July 19 found in fair condition. Requested the coal company not to permit the workmen to go in and out of the slope while trips or rope was in motion, and there is no other traveling-way for the workmen. On September 30 found the mine in fair condition for the amount of men they were employing at this time, but requested the fan speeded up in order to increase the volume of air for the future, as the company was desirous of employing more men than they were on this date. On November 7 tested one set of railroad scales, which were found weighing in favor of the miners. On December 12 found that the company had arranged to speed the fan up, but in ordering a fan shaft there was a mistake made in the length of it and in consequence the ventilation was no better than in September.

SEDALIA.

Located in the village of Glouster, O., on the T. & O. C. R. R., and is operated by the Sedalia Coal Co., Glouster, O. Jno. Palmer, Glouster, is superintendent. Slope opening, to the No. 7 seam of coal, and is about four and one-half feet thick, worked on the double entry plan, and has fan ventilation. Coal is mined and hauled by electricity to the bottom of the slope, thence to the tipple by rope. Employs 40 miners, 23 day men and 10 cutters. On November 28 found in fair condition; on June 16 found in bad condition, the volume of air not traveling into the east side of the mine at all. Requested doors placed at once to conduct the same, and place the mine in good condition. On August 10 the mine was found in bad condition, due to the velocity of the fan being too slow, and requested the speed of same increased sufficient to increase the volume of air and make the mine satisfactory. On October 14 it was found in fair condition. On November 21 found the new air course cutting through; the old rooms were not bratticed sufficient to convey the volume of air; the east entries were without ventilation. Requested the air course repaired at once. On November 26 found the volume of air had been increased in the east entries. I stopped the shooting until there was a sufficient volume of air to take away the powder smoke. On December 5 visited this mine to ascertain whether the volume of air had been

increased since my last visit, and found that a register of 3,500 cubic feet could be gotten, whereas on my former visit I was unable to get a register.

CRESCENT No. 24.

Located south of Jacksonville, O., on the K. & M. R. R., and is operated by the Northern Fuel Co., Columbus, O. N. B. Snell, Jacksonville, O., is superintendent. Shaft opening, 100 feet deep, to the No. 6 seam of coal, six feet in thickness, and worked on the double entry plan, and has fan ventilation. The mine is equipped with electric power. One hundred and forty (140) miners, 42 day men and 14 cutters are employed. On May 24 mine was found idle, no cars. On June 20 in good condition.

McLEISH 31.

Is located three miles north of Glouster, O., on the C., S. & H. R. R., and is operated by the McLeish Coal Co., Columbus, O. Jas. Richards, Glouster, O., is superintendent. Shaft opening, to the No. 6 seam, which is very irregular at this point. The double entry system is used, and fan ventilation. The coal is cut and hauled by electric power, and employs 65 miners, 33 day men and 12 cutters. On December 7 tested two sets of railroad scales. On February 1 found the brattices in bad condition, and requested the same repaired at once. On June 17 mine found in good condition. On August 23 tested two sets of railroad scales and found them accurate. November 24 the mine was in good condition.

LUHRIG NOS. 1, 2 AND 3.

Are located at Luhrig, O., on the B. & O. S.-W. R. R., and operated by the Luhrig Coal Co., Cincinnati, O. A. Lafferty, Athens, O., is superintendent. Shaft opening, 135 feet in depth, worked on the double entry system, and ventilated by two steam fans, which are located one on the top of the air shaft the other at the bottom. An electric fan is also used near the face of the north entry, in the No. 1 shaft, as an additional means of supplying ventilation to these mines. On December 8 the mine was in fair condition, and on June 22 in about the same condition. On October 18 found the boilers causing a great deal of trouble on account of the bad water, causing the fans to run very irregular.

CARBONDALE NOS. 2 AND 3.

Are located at Carbondale, O., at a station on the Mineral City Branch of the B. & O. S.-W. R. R., and are under the personal supervision of M. A. Doolittle, Carbondale, O. They are drift openings, to the No. 6 seam of coal, which is about four feet thick, with double entry system and fan ventilation. The mines are equipped with electric power for

mining and hauling the coal. The coal at the No. 2 mine is hauled by horses to a point near the mouth and hoisted to the tippie by chain. Employs 85 miners, 24 day hands and 10 cutters. On July 26 found in good condition. These mines have been idle a great deal of the time during the year.

DEL CARBO.

Is located at Carbondale, O., on the Mineral City Branch of the B. & O. S.-W. R. R., and is operated by the Hocking Mining Coal Co., Athens, O. Jacob Sherman of the same place is superintendent. Slope opening, to the No. 6 seam of coal, and is about four and one-half feet thick, worked on the double entry system and is ventilated by a fan. The mine is equipped with rope haulage and machines operated by electricity mine the coal. It employs 50 miners, 16 day hands and 6 cutters. On July 27 found in good condition. This is a new mine, opened up during the year.

WINCHESTER.

Is located on the Mineral City Branch of the B. & O. S.-W. R. R., and operated by the Winchester Coal Co., Carbondale, O. R. K. Giffen of the same place is superintendent. Slope opening, to the No. 6 seam, and is from three and one-half to four feet thick, worked on the double entry plan, with fan ventilation. Equipped with rope haulage, and electric machines cut the coal. Employs 30 miners, 10 day men and 4 cutters. On July 28 the south entries were found in bad condition, due to the lack of doors to conduct the volume of air to that part of the mine. Requested the same done at once.

NEW YORK NO. 2.

Is located one mile east of Buchtel, on the C., H. V. & T. R. R., and is operated by the New York Coal Co., Columbus, O. P. C. Morris, Nelsonville, O., is superintendent, and R. R. Graves is mine boss. Drift opening, to the No. 6 vein of coal, and is about five feet in thickness at this point. Worked on the double entry system, and fan ventilation. Also equipped with chain hoist in getting the coal to the tippie. Electric machines cut the coal. This is just a new mine, opened up during the year, and visited on December 20 for the first time and found in good condition.

BROADWELL.

Is located at Broadwell, O., on an extension of the T. & O. C. extension, and is operated by O. B. Gard, Marietta, O., who is superintendent. This is a drift opening, to the No. 8 seam, which is about 11 feet thick, worked on the double entry system and ventilated by a fan. The coal is mined by electric power and hauled to the tippie by means of a rope. Ten

(10) miners, 4 day men and 2 cutters are employed. This mine has been suspended for some time during the year. On April 19 found idle, and on September 9 was found in fair condition.

BIG RUN.

Is located at Big Run, O., on the T. & O. C. extension, and operated by Gilliam & Minschall Coal Co., Columbus, O. C. L. Spriggs is superintendent, Big Run, O. Slope opening, to the No. 8 seam of coal, which is eight feet thick, separated in the center by a three-foot layer of slate and stone, operated on the double entry system, and ventilated by a fan. The coal is mined by picks and hauled to the tippie by means of a rope. Employs 20 miners, 4 day men. This mine has been suspended for some time during the year. On September 9 found the north side of the mine in bad condition, on account of not having doors placed to convey the volume of air to the working places. Requested the same remedied at once.

FEDERAL VALLEY NO. 1.

Is located one mile north of Broadwell, on the T. & O. C. extension, and operated by the Twin Vein Coal Co., Broadwell, O. J. C. Bates of the same place is superintendent. Slope opening, to the No. 8 seam, which is eight feet thick, separated in the center by two and one-half feet of slate and stone. Worked on the double entry plan, and has fan ventilation. The coal is mined by picks, and hauled to the tippie by means of rope. This mine has been idle a greater portion of the year. On September 9 found in fair condition.

SUELAR.

Is located on the T. & O. C. extension R. R., and operated by Jacob Suelar, Sharpsburg, O. Drift opening, to the No. 8 seam of coal, which is eight feet thick at this point. Worked on the double entry plan, and has furnace ventilation. Electric machines cut the coal. Nine (9) miners and three day men are employed. On September 7 the mine was found in fair condition.

WELLS NO. 2.

Is located two miles east of Amesville, O., on the T. & O. C. extension, and is operated by the Peacock Coal Co., Amesville, O. W. R. Wells of the same place is superintendent. Drift opening, to the No. 8 seam, which is eight feet thick, worked on the double entry plan, and is equipped with a furnace to provide the ventilation. This is a new mine, opened up during the year, and employs 10 miners; the coal is mined by the use of picks. Two (2) day men are also employed. On September 8 found in fair condition.

No. 209, No. 210 AND No. 211 MINES.

Are located on Sugar Creek, a tributary of the Hocking River, branching off about three miles north of Athens and coursing in a north-easterly direction. The Continental Coal Co., Columbus, O., have under lease ten thousand acres along this creek. They have constructed the A. A. & C. R. R. to these new mines. This field has been thoroughly drilled and surveyed in order to test the thickness of the coal, as well as the contour of the vein. Other mines can be opened up as well as the ones that have already begun operations. The No. 209 mine is 250 feet deep, and is completed. On December 9 they commenced to dump coal over their steel tippie, and on January 1 were handling about two hundred tons of coal per day. This is the first steel tippie ever erected in this district, and is constructed for the careful handling of coal. It is equipped with self-dumping cages, and first-motion hoist engine, and a large Buffalo fan will be installed. The carpenter, blacksmith shops, supply room, electrician's room and offices are all located in one building, and the most complete and the best arranged that I have ever seen. These mines can be said to be modern in every respect. They are equipped with a temporary central power plant, which will furnish electric power to the three mines. A direct current is being used for the present, but a permanent alternating current plant, with transformers at each mine, is under consideration. They calculate the present plant will furnish all the power required for several years, and when a permanent plant is installed it will be sufficient to supply the entire field. Mines 210 and 211 are duplicates of 209, with the exception that the 210 hoist will be placed on the side instead of the end. The number employed at present are few compared to what will be employed in the future at these mines. The mine superintendents are as follows: No. 209 mine, Ben Eddy, Athens, O.; No. 210 mine, Wm. Simons, Athens, O., and Jas. Williamson, of Glouster, O., at mine No. 211.



"Mine No. 203, owned by the Continental Coal Co., Columbus, O. Located at Athens, O., on Sugar Creek, a branch of the Hocking River."

GALLIA COUNTY.

CARL No. 1 AND No. 2.

Are located at Carlton, O., on the C., H. V. & T. R. R., and operated by E. L. Carl, Carlton, O. J. Carl of the same place is superintendent. They are drift opening, to the No. 8 seam of coal, which is about four feet thick, worked on the double entry plan and ventilated by a furnace. All are equipped with electric power for mining and hauling the coal, and employ 32 miners and 12 day men. On November 19 they were found idle; also, on January 29 and October 4 found in fair condition.

SWAN CREEK.

Is located at Bladen, O., on the Ohio River, and operated by the Swan Creek Coal Co., Gallipolis, O. J. M. Scherschel, Bladen, O., is superintendent. This is a pick mine, and operated on the double entry plan, and has furnace ventilation. Employs 16 miners and 6 day men. On April 13 it was found in good condition. On September 26 was called to this mine to investigate the cause of the accident in which Frank Butcher and Jno. Phillips met their death by a premature explosion of a shot.

MEIGS COUNTY.

SYRACUSE SLOPE.

Is located at Syracuse, O., and operated by the Suttan Coal Co., Syracuse, O. J. B. Malone of the same place is superintendent. Slope opening, to the No. 8 seam of coal, which is about five feet thick, worked on the double entry system and ventilated by a fan. Employs 35 miners and 17 day men. On January 2 tested a set of tippie scales, which were found weighing twenty pounds against the miners, and requested them repaired at once. On April 26 the mine was found in fair condition; on May 17 investigated a gas well which was being drilled through the mine, and found that, according to the best judgment of the superintendent, that the well went through a solid block of coal. On October 24 mine was found in bad condition. Requested the superintendent to procure a better fan than the one in use at the time.

PITTSBURG.

Is located at Minersville, O., on the Ohio River, and is operated by the Pittsburg Mining Co., Minersville, O. Wm. Miller, Minersville, O., is superintendent, and W. S. Malone of the same place is mine boss. Slope, to the No. 8 seam, which is five feet thick, worked on the double entry system and a furnace supplies the ventilation. The coal is mined

by electricity, which was installed during the year. Employs 40 miners, 19 day men and 4 cutters. On April 28 mine was found idle. On October 27 mine found in good condition. Tested one set of tippie scales, which were found correct.

COAL RIDGE.

Is located at Carrs Run, in Pomeroy, O., and operated by the Coal Ridge Salt Co., Pomeroy, O. Drift opening, to the No. 8 seam, and the coal is five feet in thickness. Worked on the double entry plan, and has furnace ventilation. Dan Daniels, Pomeroy, O., is superintendent. Sixteen (16) miners and 5 day men are employed. On April 28 the mine was found idle. On October 25 found in fair condition.

RUSSELL & BEAR.

Is located near Minersville, O., on the Ohio River, and is operated by Russell & Bear, Pomeroy, O. E. Bear is superintendent and mine boss, and resides at Minersville, O. Drift mine, to the No. 8 seam of coal, worked on the double entry plan, and has a furnace as a means of ventilation. It employs 20 miners. Two visits were made during the year, and found the mine idle on both visits.

BUCKEYE.

Is located at Pomeroy, O., and is operated by the Buckeye Salt Co., Pomeroy, O. Ed Weeks, Pomeroy, O., is superintendent and mine boss. Drift opening, to the No. 8 seam of coal, worked on the double entry system, and has natural ventilation. Seventeen (17) miners and four day men are employed. On April 29 found idle, and on October 7 found in fair condition.

ROLLING MILL.

Is located at Pomeroy, O., and is operated by the Peacock Coal Co., Pomeroy, O. Drift opening, to the No. 8 seam of coal, which is five feet thick, worked on the double entry system, and is ventilated by means of a furnace. This mine is equipped with its electric power from the Charter Oak mine, and employs 65 miners and 23 day hands. On March 25 found idle, and on October 7 found in good condition.

CHARTER OAK.

Is located at Pomeroy, O., on the Ohio River, and also on the C., H. V. & T. R. R., and is operated by the Peacock Coal Co., Pomeroy, O. Martin Ebersbach is superintendent and Wm Ebersbach is mine boss. Drift opening to the No. 8 seam of coal, worked on the double entry system and ventilated by a fan. This mine has been equipped with two large electric motors, one 12 the other 15 tons, for the purpose of hauling the coal. Machines run by the same power cut the coal. This mine is

modern in every respect, with two sets of dumps in the tippie, two of which are for the river trade and the other for the railroad. The capacity of the mine is not as large as it should have been, owing to the miners being out on a strike for the scale made in 1904 for a period of six months. On April 29 the mine was found idle, the miners being on a strike. On May 4 inspected the mine and found the volume of air insufficient, and requested the company to sink an airshaft near the face of the workings and use the same for an inlet to the fan. On July 5 found some day hands working on repairs, and inspected the mine and found the company unable to start the airshaft on account of having about fifty yards of entry to drive to a point where they desire to sink the shaft. On October 26 found the mine in operation and in bad condition, due to the airshaft not being sunk, on account of long idleness and requested the same completed as soon as possible.

PEACOCK NO. 2 AND NO. 3.

Are located at Pomeroy, O., on the Ohio River, and operated by the Bengel Bros., Pomeroy, O. A. W. Bengel is superintendent and H. V. Carl is mine boss. They are drift openings, to the No. 8 seam, and the coal is about five feet in thickness, worked on the double entry plan and ventilated by a furnace. They are equipped with electric power for mining the coal, and a rope system is installed for hauling the coal to the second hill, which is then taken to the tippie out at the river side by a locomotive. On March 4 found the mine idle on account of the river not being navigable. On October 6 found the mine just starting up after a long period of idleness caused by the miners being out on a strike. On December 29 mine found in fair condition, with the number employed greatly reduced from the number formerly employed, when picks were in use. Thirty miners, 16 day men and 4 cutters were employed.

SILVER RUN.

Located four miles west of Middleport, O., on the C., H. V. & T. R. R., and is operated by W. C. Russel, Middleport, O., who is superintendent, with J. Reese as mine boss. Drift opening, to the No. 8 seam, the coal being about four and one-half feet in thickness, worked on the double entry system and ventilated by means of a fan. Electricity is used both in mining and hauling the coal. Employs 27 miners, 10 day men and 4 cutters. Four visits were made during the year. On January 30 and March 25 mine was idle, and no inspections made. On October 4 mine found in good condition, and on November 19 and December 7 visited this mine to secure map for filing with the Mining Department.

ROCKVILLE, OR KINGS.

Is located three miles north of Middleport, on the K. & M. R. R., and is operated by the Hisylvania Coal Co., Trimble, O. J. W. Blower, Trimble, O., is superintendent and J. Harden is mine boss. Drift open-

ing, to the No. 8 seam, worked on the double entry system and ventilated by a furnace. This is a pick mine, and employs 75 miners and 24 day men. On December 3 called to this mine to investigate fatal accident resulting in the death of Chas. McKnight, who was killed by a fall of slate at the face of his entry. March 26 and May 5 the mine was found idle. On October 5 the mine was just resuming operations after a long period of idleness, due to a strike. Conditions were fair. On November 18 tested one set of tippie scales, and found them accurate.

DABNEY.

Is located two and one-half miles back in the hills from Middleport, O., the coal being hauled to the Ohio River and the C., H. & D. R. R. by horse power on a tram road. It is operated by the Monkey Run Coal Co., Gallipolis, O. Thos. Jones is superintendent and A. Smith mine boss. Both are of Middleport, O. Drift mine, to the No. 8 seam, the coal being mined by picks, worked on the double entry plan, and has furnace ventilation. On October 29 found the mine in bad condition, due to the air courses being closed for a distance of one hundred feet. Requested the same opened up at once. On November 16 was there for the purpose of looking after my request of October 29, at which time found the air courses opened up and the mine in fair condition.

STEVENS.

Is located at or near Rutland, O., on the K. & M. R. R., and operated by the Hocking Valley Fuel Co., Columbus, O. Jno. Kauff is superintendent and mine boss. Drift opening, to the No. 8 seam of coal, which is five feet thick. Pick mine, worked on the double entry system, and has natural ventilation, the entries being driven out to daylight. Employs 28 miners and 15 day men. On November 17 mine was in fair condition.

HEDLEY.

Is located at Middleport, O., and is a town mine, operated by Jno. Hedley, who is superintendent and mine boss. Drift, to the No. 8 seam, which is mined by picks on the double entry system and ventilated by a furnace. It employs 10 miners and one day man. On October 5 mine was in fair condition.

MIERS.

Is located three miles west of Middleport, O., along the main pike road, and operated by the Hobison Coal Co., with O. H. Miers, Pomeroy, O., as superintendent. Drift, to the No. 8 seam of coal, about five feet in thickness, worked on the double entry plan and ventilated by natural atmospheric pressure, the coal being hauled by wagons to the railroad and loaded on flat-cars. It employs 10 men. On October 4 mine was found in fair condition.

THIRD DISTRICT.

L. W. HULL.

MUSKINGUM, PERRY AND HOCKING.

HON. GEO. HARRISON, *Chief Inspector of Mines, Columbus, Ohio.*

SIR: — I have the honor to submit herewith my first annual report of visits made and examinations of mines in the Third Mining District of Ohio, from the time of my appointment, commencing June 1, 1904, to January 1, 1905.

The coal trade has been exceptionally good in this district, with the exception of an occasional day off from the lack of cars. There was a suspension of work in the low vein coal of my district when I entered upon my duties as Mine Inspector, which was caused by a disagreement between the miners and operators in adjusting the scale of wages, which lasted for several months, but was finally amicably settled. With the resumption of work in this special locality of my district, the mines were operated almost full time.

Six new mines have been opened up during the year, which will be operated on an extensive scale and will be equipped with the latest improved electric machinery, viz., W. A. Gosline Co., Jobs-Ohio-Hocking Coal Co., New Pittsburg Coal Co., two (2) mines; the Indian Run Mining Co., and the Upson Coal Mining Co.

The coal lands in this district, as far as I have been able to observe, in a general sense, have been taken up.

I regret that I am compelled to report nine (9) fatalities in this district during the year. Five (5) are accredited to Perry and four (4) to Hocking county. A full report of these accidents has been made, and appears in another part of the Annual Report. A thorough investigation showed that, with but one exception, which was an unavoidable accident, the victims met their death through carelessness.

The prosperity of the miner's vocation as coming under my observation in my district, at least in localities where no disturbances or cessation of work occurred, will excell that of any other.

Thanking you for advice and ever ready counsel to promote the interest and general welfare of all concerned I am,

Respectfully yours,

L. W. HULL,
Inspector Third Mining District.

Murray, O., January 1, 1905.

HOCKING COUNTY.

MORRIS No. 1.

Is located at Jobs, O., on the H. V. R. R., and is operated by the Buckeye Coal & Ry. Co., Columbus, O. Edw. Fluke, Nelsonville, O., is superintendent and Jos. Smith, Jobs, O., is mine boss. Drift opening, to the No. 6 seam of coal, which is about seven feet thick, ventilated by a furnace, and employs 114 miners and 31 day hands. Three inspections were made during the year. The ventilation was found deficient, owing to the brattices leaking and break-throughs open next to the furnace drawing the air from old rooms. Requested that brattices be made tight and the break-through at the furnace closed up. On August 31 Middle Hill mine was found with deficient ventilation, owing to open brattices. Requested that they be repaired at once. On November 26 the mine was found in an improved condition, requests having been complied with and results satisfactory. The conditions on the new side have been greatly improved.

MORRIS No. 2.

Is located at the same place as the No. 1 and is operated by the same company, with the same superintendent and mine boss in charge. It is a drift opening, to the same seam of coal, ventilated by a fan, and 124 miners and 80 day hands find employment. Inspected three times during the year. On June 14 the ventilation was found deficient, owing to the last break-through in all the entries and rooms being partly filled with refuse. Requested that all break-throughs next to the face, both in entries and rooms, should be kept open. A written notice was given the Mine Committee, prohibiting miners from riding on loaded trips, and that it must be rigidly enforced. On October 1, with the exception of a few minor requests, the mine was found in good condition.

MORRIS No. 3.

Is operated by the same company as the No. 1 and No. 2 mine, and under the same mine management. The same conditions prevail as to kind of opening, and has fan ventilation. One hundred and twenty-seven (127) miners and 54 day hands are employed. Inspected three times. On June 6 the ventilation was found deficient, owing to the entry brattices leaking. Requested that they be reelayed and repaired. On June 10 returned to complete the inspection commenced on June 6, and found that former orders had been carried out November 23. This mine is rapidly

exhausting, pillars and stumps being the principal work. Sanitary conditions and proper care of places are all that can be looked for.

CAWTHORNE.

Is located near Monday, O., on a branch of the H. V. R. R., and is operated by the New Pittsburg Coal Co., Columbus, O. G. S. Weitzel, Buchtel, O., is superintendent, and Jos. Slater, Monday, O., is mine foreman. Drift opening, to the No. 6 seam of coal, which is about seven feet thick. Fan ventilation is in use, and 225 miners and 91 day hands are employed. Four visits were made. On June 8 and 9 the ventilation was found deficient, owing to the brattices leaking. Requested that they all be reelayed. The mine throughout was improperly posted, and the Mine Committee was requested to call a meeting and instruct the miners to at once properly post up their working places. On June 29 was called to this mine by the Mine Committee to test a pair of scales (Howe R. R.). Eight (8) tests, loaded and light; they proved to be weighing correctly. On August 30 mine was found in an improved condition, former requests having been complied with. Rooms had all been posted up, and the break-throughs regular and in good order. The mine was in good condition. On September 26 was called to this mine by request of the Mine Committee to investigate the cause of doors standing open; requested that one more trapper be employed.

NEW PITTSBURG No. 1.

Is located at New Pittsburg, O., on a branch of the H. V., and is operated by the New Pittsburg Coal Co., Columbus, O. G. C. Weitzel is superintendent and George Butts is mine boss. Drift opening, to the No. 6 seam of coal, which is from six to seven feet in thickness. A fan is used as a ventilating medium, and 140 miners and 61 day hands are employed. Three inspections were made during the year. On June 11 ventilation was deficient, on account of the entry brattices and doors being in need of repair. Requested that they all be gone over; also that the eighth east entry be driven to daylight for air and man-way. On October 10 the mine was found in an improved condition. December 23, with the exception of a few minor requests, the mine was in good condition.

NEW PITTSBURG No. 2.

Is located at the same place as the No. 1 and under the same management, penetrates the same seam and of the same thickness, ventilated by a furnace. Inspected three times during the year. On July 6 the ventilation was found deficient, owing to conditions to produce ventilation. Requested that one airshaft be sunk at once. Fifteen (15) miners and 2 day hands are employed. On August 2 mine was found in bad condition,

former requests not having been complied with, and the mine generating black-damp. Requested that the mine be closed until sanitary conditions were provided. On December 30 instructions had been carried out, and the mine in good condition.

NEW PITTSBURG No. 2 $\frac{1}{2}$.

Is located at New Pittsburg, on a branch of the H. V. R. R., and is operated by the New Pittsburg Coal Co., Columbus, O. G. C. Weitzel is superintendent and Geo. Butts, Blatchford, O., is mine foreman. It penetrates the No. 6 seam of coal, and has natural ventilation. The coal is here about seven feet in thickness. Thirteen (13) miners and 3 day hands are employed. Work is being conducted along the crop line, and conditions are fair.

NEW PITTSBURG No. 3, OR CONSOL.

Is located at New Pittsburg, on a branch of the H. V. R. R., and is operated by the New Pittsburg Coal Co., under the same mine management as the No. 2 $\frac{1}{2}$. Drift opening, to the No. 6 seam of coal, which is about seven feet in thickness. Ventilated by a fan, and employs 176 miners and 69 day hands. Two inspections were made during the year. On June 15 the ventilation was found deficient, owing to the entry brattices leaking. Requests were made to have them gone over and reelayed. Found the man-way flooded with water and the miners riding the rope trips, and instructions were given to make the man-way available at once, and that the miners cease riding loaded trips. On August 15 the brattices on the first east entry were all condemned excepting one. The principal work of this mine is confined to the first and second east entries, and instructions were issued to have the brattices given immediate attention. On December 22 the mine was idle, and no inspection was made.

NEW PITTSBURG No. 11.

Is located at the same place as the Consol No. 3, and under the same management. It is a drift opening, penetrating the No. 6 seam of coal, which is about seven feet thick, and is ventilated by means of a furnace. Fifteen (15) miners and 2 day hands are employed. Four (4) inspections were made during the year. On July 6 the mine was found in a dangerous condition and stopped four men from work, the ventilation being deficient. On August 2 the mine was found to be full of black-damp, and requested the mine to cease operation until furnished with proper ventilation. On October 11 the mine was found in good condition, with a furnace as a ventilating medium. On December 30 the mine was also found in *good condition*.



New Pittsburg Coal Company's Mine Tipples, Located at Monday, Ohio.



Winter Camp, Colorado, 1911

NEW PITTSBURG No. 7.

Is located near Murray, O., on the branch of the H. V. R. R., and operated by the New Pittsburg Coal Co., Columbus, O. G. C. Weitzel, Buchtel, O., is superintendent, and M. M. Kassler, Murray, O., is mine boss. Drift opening, to the No. 6 seam of coal, which is here from seven to eight feet in thickness. A fan is used as a ventilating medium, and 120 miners and 55 day hands are employed. Four inspections were made to this mine during the year. On June 3 and 4 the ventilation was found deficient, owing to the break-throughs throughout the mine leaking, which had never been clayed, and the ventilation greatly impaired. Requested that all the brattices be overhauled and clayed. On June 27 was called to this mine by the mine committee, to investigate the cause of the close air in the rooms on the east entries off the south. Requested that a check door be placed near the sixteenth room at the head of entry. On August 16 the mine was found in an improved condition, former requests having been complied with. On December 21 the mine was found in good condition.

MURRAY No. 5.

Is located at Murray, O., over the Athens county line, on a branch of the H. V. R. R., and is operated by the New Pittsburg Coal Co., Columbus, O. G. C. Weitzel, Buchtel, O., is superintendent and Jno. Slater, Murray, O., is mine boss. Slope opening, 125 feet in dept, to the No. 6 seam of coal, which is about seven feet thick and is ventilated by a fan, employing 200 miners and 43 day hands. Inspected three times during the year. Two of these inspections were made for the purpose of investigating the cause of fatal accidents occurring at this mine, and to test a pair of Howe railroad scales. On July 7 was called to this mine to investigate the fatal accident resulting in the death of Jos. Magzar, of which a full report has been made to the department. On July 18 and 20 the ventilation was deficient, owing to nearly all the break-throughs next to the face and in entries being partly filled with refuse, the break-through system throughout the mine being in name only. Requested that a uniform system of break-throughs be established and all break-throughs next to the faces kept clear of refuse. On August 4 was called by the Mine Committee to test a pair of Howe railroad scales, which were found correct. On August 25, owing to the fact that several complaints had been filed with me that the ventilation was bad I found that a brattice built of gob was leaking badly, and requested that it be taken out and replaced with lumber. Also requested that a stack be built at the outlet. On November 4 was called to investigate the death of Homer Frazee, of which a full report has been made. On November 21 former requests had been complied with, and the mine in general good condition.



1

BUCHTEL No. 4.

Is located at Buchtel, O., on a branch of the H. V. R. R., and is operated by the New Pittsburg Coal Co., Columbus, O. G. C. Weitzel, Buchtel, O., is superintendent, and Chas. H. Thompson, Buchtel, O., is mine boss. It is a drift opening, to the No. 6 seam, which is about six feet thick. Fans are in use as ventilating mediums. One hundred and ninety (190) miners and 57 day hands are employed. Three inspections were made during the year. On July 7 was informed by the superintendent that the mine would be abandoned after one month. The mine is nearing exhaustion, and consists of chiefly pillar and stump work. Conditions were as good as could be expected. On September 26 the mine was in about the same condition as found on my visit on July 7, the miners being hauled to and from their work, as was arranged on my previous visit. On November 10 this mine was visited by special request of the Mine Committee, who claimed the mine was filled with black-damp. I found from 17,000 to 25,000 feet of air circulating through the mine. Investigation developed that the complaint was made while the engine was broken down. The pillar work is in as good condition as could be expected.

SNAKE HOLLOW No. 207.

Is located at Snake Hollow, on a branch of the H. V. R. R., and is operated by the Continental Coal Co., Columbus, O., with D. C. Thomas, Glouster, O., superintendent, and C. V. Bartels, Nelsonville, O., mine boss. Drift opening, to the No. 6 seam of coal, which is from six to seven feet in thickness, ventilated by means of a fan, and employs 168 miners and 85 day hands. One inspection was made. Among several minor requests, suggested that the miners make no further use of the motor-way as a traveling way.

SNAKE HOLLOW No. 208.

Is located at the same place as the No. 207 and is under the same management, with the same seam of coal, and has fan ventilation. Seventy-eight (78) miners and 25 day hands are employed. Was called to this mine on June 18 by the Mine Committee to investigate the cause of bad ventilation. The mine was equipped with a small fire-basket, which gave but four thousand feet of air. What ventilation was supplied by the fire-basket was not properly distributed, owing to the brattices in the mine being in bad condition. Requested that operations cease until ventilation was provided for the men to work in. The mine was closed one day and one night, and an electric fan was placed in position, which improved conditions and covered all complaints. On October 13 was called to this mine to investigate the death of Hamilton Coalgrove, of which a full report has been made.

LOST RUN No. 4.

Is located at Lost Run, O., on a branch of the H. V. R. R., and is operated by the Buckeye Coal & R'y. Co., Columbus, O. Edw. Fluke, Nelsonville, O., is superintendent and Geo. Gulley, New Straitsville, O., is mine boss. Drift opening, to the No. 6 seam, which is ten feet in thickness. The old side is now exhausted and a new mine opened up. Work has been suspended indefinitely.

EAST HILL COAL CO.

Is located near Buchtel, O., on a branch of the H. V. R. R., and is operated by Beattie Bros., Nelsonville, O. Jas. Beattie, Nelsonville, O., is both superintendent and mine boss. Drift opening, to the No. 6 seam, which is six feet thick, and is ventilated by a furnace. Eighteen (18) miners and 4 day hands are employed. On my visit of June 7 the mine was flooded, and without ventilation. Requested operations to cease until conditions were obtained that would permit men to be employed in it. The mine has since suspended operations.

SYCAMORE No. 2.

Is located at Brenholts, O., on a branch of the H. V. R. R., and is operated by the Continental Coal Co., Columbus, O., with D. C. Thomas, Glouster, O., as superintendent and Wm. Thomas, Murray, O., mine foreman. Drift opening, to the No. 6 seam of coal, which is from six to eight feet in thickness, ventilated by a fan, and employs 50 miners and 20 day hands. Inspected three times during the year. On June 16 found that the map of the mine was greatly confused, owing to rock cut-outs and faults. Conditions were as good as could be expected under existing circumstances. On October 10 the mine was found in good condition and also on December 20.

STALTER No. 2.

Is located at Longstreth, O., on the Monday branch of the H. V. R. R., and is operated by the Carbon Hill Coal Co., Carbon Hill, O. Frank Hawk, Carbon Hill, O., is both superintendent and mine boss. Drift opening, to the No. 6 seam of coal, and is about seven feet thick. Inspected once on August 29, and found in first-class condition. Twelve (12) miners and 5 day hands are employed. A furnace is used as a means of ventilation.

BLACK DIAMOND.

Is located at New Haydenville, O., and is operated by the Haydenville Mfg. Co., Columbus, O. The product of this mine is consumed by the plant. J. W. Jones, Haydenville, O., is superintendent and Henry

Snoke, Haydenville, O., mine foreman. Drift opening, to the No. 6 seam, which is about six feet thick, ventilated by a furnace, and employs 21 miners and 5 day hands. Inspected on October 3. The ventilation was well distributed, with the exception of the head of the works, but a double shift is driving out to daylight for ventilation, which when completed will place the mine in good condition.

No. 15.

Is located at Sand Run, O., on the Monday branch of the H. V. R. R., and is operated by G. W. Hite, Sand Run, O., who is superintendent and mine boss. Drift opening, to the No. 6 seam of coal, which is seven feet thick, ventilated by a fan, and employs 30 miners and 5 day hands. On July 28 a fan had been installed, which, with some other minor changes, has greatly benefited the general conditions. This plant has since been destroyed by fire, and as yet has not been rebuilt.

HAYDENVILLE CLAY MINE.

Is located near Haydenville, O., and is operated by the Haydenville Mfg. Co., and the output is consumed by the plant. J. W. James, Haydenville, O., is superintendent and E. Campbell, of the same place is mine boss. Seven (7) miners and 2 day hands are employed. It is a drift opening, penetrating the No. 5 seam of clay, which is from seven to twelve feet in thickness. On October 3 the mine was found in good condition, excepting at the head, where the air was deficient. Requested an airshaft sunk at the head of the main entry.

COLUMBUS BRICK AND CLAY MINE.

Is located at Union Furnace, O., and the output used at the plant operated by Columbus Brick & Terra Cotta Co., Union Furnace, O. B. F. Fisher, Union Furnace, O., is superintendent and Jas. Bickel of the same place mine boss. It is a drift opening, penetrating the No. 3 seam of clay, which is from 8 to 12 feet thick. A furnace ventilates the mine, and 10 miners and 6 day hands are employed. On October 4 the mine was found in first-class condition.

PERRY COUNTY.

No. 8.

Is located at Corning, O., on the T. & O. C. R. R., and is operated by the Sunday Creek Coal Co., Columbus, O. Jno. F. Roberts, Corning,

O., is superintendent and W. H. Kelley of the same place is mine boss. Shaft opening, 80 feet in depth, to the No. 6 seam of coal, which is 12 feet thick, ventilated by means of a fan, and employs 145 miners and 63 day hands. One inspection was made during the year. On June 21, with the exception of a few minor requests, the mine was in fair condition. Tested a pair of Howe railroad scales, and found them weighing correctly.

SAN TOY NO. 1.

Is located at San Toy, O., on a branch of the B. & O. R. R., and is operated by the New England Coal Co., Columbus, O. Wm. Diltz, Corning, O., is superintendent and Jas. Palmer, Corning, O., is mine boss. It is a shaft opening, 185 feet in depth, to the No. 6 seam of coal, which is 4 feet 8 inches in thickness, ventilated by a fan, and employs 100 miners and 70 day hands. One inspection was made, on June 22, and the ventilation found deficient, due to the brattices leaking and the doors in bad repair. Requested that they be given attention at once. Owing to the scarcity of lumber, brattices have not been placed at the proper times. I find some gas, but with lawful bratticing it will be of little consequence. Water was found running down the stairway, which made access very disagreeable, and requested that the stairway be made available. I have requested that safety catches be placed on the cages. Better conditions are anticipated on my return visit.

No. 26

Is located one mile south of Corning, O., on the T. & O. C. R. R., and is operated by the Chicago & Hocking Coal Co., Toledo, O. Wm. Lafferty, Corning, O., is superintendent and also mine boss. Slope opening 276 feet deep, to the No. 6 seam of coal, which is from 7 to 10 feet thick, ventilated by a fan, and employs 70 miners and 24 day hands. One inspection was made, on June 23, and the ventilation found good. There is a very dangerous top at the bottom of the shaft, which was requested timbered about one hundred feet back; also requested safety catches placed on the slope incline, otherwise the mine was in good condition.

MINE NO. 20.

Is located at Hemlock, O., on the Zanesville & Western R. R., and is operated by the Sunday Creek Coal Co., Columbus, O. Jno. Roberts, Corning, O., is superintendent and Wm. Davis, Hemlock, O., is mine foreman. Slope opening, 100 feet deep, to the No. 6 seam of coal, which is 6 feet thick, ventilated by a fan, and employs 70 miners and 24 day hands. Two inspections were made. On June 28 the ventilation was found deficient, owing to the airway being clogged with falls. The air is now being dragged through old works, and the only remedy for material ben-

efit, in my opinion, would be to sink an airshaft, which was requested done, Manager Roan agreeing to put the shaft down as soon as the east entries are driven a short distance ahead. On December 9 five west entries were stopped since my former visit on June 28, in account of the difficulty of ventilating. Requested that two west cut-offs be driven double shift. One hundred feet will drive through to the south entry, which will give a straight course for ventilation, which will greatly benefit the west side of this mine.

No. 9.

Is located at Sulphur Spring, O., on the Glouster branch of C., S. & H. R. R., and is operated by the Sunday Creek Coal Co., Columbus, O. Jno. F. Roberts, Corning, O., is superintendent and Jno. Wilds, Carrington, O., is mine foreman. Shaft opening, 100 feet in depth, to the No. 6 seam of coal, which is about 7 feet thick, ventilated by means of a fan, and employs 223 miners and 82 day hands. Inspected on June 30 and July 1. The ventilation was deficient in a portion of the mine, owing to no proper break-through system. Requested that several rooms be stopped throughout the mine, on account of their being driven from one to two hundred feet without a break-through. Requested that hereafter break-throughs must be made according to law. Otherwise the mine was in good condition.

No. 21.

Is located at Carrington, O., on the C., S. & H. R. R., and is operated by the Sunday Creek Coal Co., Columbus, O. Jno. F. Roberts is superintendent and Edw. Lynch of the same place is mine boss. Slope opening, to the No. 6 seam of coal, which is 10 feet thick, ventilated by fan, and 89 miners and 32 day hands are employed. Two inspections were made and one visit to test the scales. On July 19 the ventilation was found deficient, owing to leakage at break-throughs. The break-throughs were irregular, and many rooms without any. Requested break-throughs to be made regular at 60 feet, and 30 days was given in which to complete them. Also requested a fan to be placed at the mouth of the old haulway, on the west side. On August 19 the break-throughs were found to be uniformly opened, and fan on the ground ready to be placed. I was gratified with the improvements that have been made within 30 days. On August 22 tested two pair of scales of the Standard Pittsburg Scale Co., and found them weighing correctly.

SHAWNEE VALLEY.

Is located at Shawnee, O., on the B. & O. and C., S. & H. R. R., and is operated by Maynard Bros. Columbus, O. W. E. Williams, Shawnee, O., is superintendent and mine boss. Drift opening, to the No. 6 seam of coal, which is 10 feet in thickness. Fan ventilation, and employs 60

miners and 16 day hands. Two inspections made during the year, and one for the purpose of testing a pair of scales. This mine is about exhausted, the work being confined to the drawing of pillars and entry stumps. On July 19 the mine was found with foul air and black-damp. Requested that the fan be run night and day. On August 23 tested a pair of basket-scales, and found them correct. On September 19 was called to this mine by the Mine Committee to investigate the cause of black-damp accumulating in the mine. Mr. Williams failed to carry out his agreement to run the fan night and day. Requested that he at once place the fan on double shift, to which he agreed, and the shift started on the evening of that date.

PINE RUN.

Is located at Sulphur Springs, on the Glouster branch of the C., S. & H. R. R., and operated by Roberts and Davis, Hemlock, O. Evan Roberts is superintendent and mine boss, Hemlock, O. Drift, to the No. 6 seam of coal, which is about five feet thick. A fan is the ventilating medium, and 85 miners and 14 day hands are employed. Inspected once, on July 22, and the ventilation found deficient, owing to no system for ventilation, the first two doors being open, taking about nine thousand feet of air from the inlet because of this disorder. The first and second west entry off the south gave no register. Requested bad top taken down on the main entry switch; also requested bad top taken down on the switch of the main north entry, and that safety gates be placed at the top of the dumping shaft. Instructions were given for a lawful break-through system to be adopted at once.

ROCK RUN No. 3.

Is located at Rock Run, O., on a branch of the B. & O. R. R., and is operated by the C. & H. C. & I. Co., Columbus, O. Guy Newton, New Straitsville, O., is superintendent and Wm. B. Ward of the same place mine boss. Drift opening, to the No. 6 seam of coal, which is from six to eight feet in thickness. Fan ventilation is in use, and 141 miners and 82 day hands are employed. One inspection was made and one visit to test the scales on July 29. On August 1 the ventilation was deficient on the north side, owing to small, temporary fan being installed until the airshaft was sunk, which will be completed as soon as the entry is driven up. With this exception and a few minor requests the mine was in good order. On the east side I found the volume of air throughout the mine insufficient. Investigation developed that the fan was being run too slowly, and instructed hereafter that the fan be run with increased velocity. On August 23 was called to this mine by the Mine Committee to test two pairs of railroad scales, one pair being box-car the other flat-car, of the Pittsburg Standard make, and found them weighing correctly.

No. 5.

Is located near New Straitsville, O., on a branch of the H. V. R. R., and is operated by the Buckeye Coal & R'y Co., Columbus, O. Edw. Fluke, Nelsonville, O., is superintendent and R. J. McGuire, New Straitsville, O., is mine boss. Drift opening, penetrating the No. 6 seam of coal, which is from five to nine feet thick, ventilated by a furnace, and employs 70 miners and 20 day hands. One inspection was made, on August 3, and the ventilation in good condition, owing to holes being broken through to daylight at the head of nearly all the entries. With the exception of request for a few break-throughs, the mine was in good condition.

No. 15 (JONES COAL CO).

Is located near New Straitsville, O., on a branch of the H. V. R. R., and is operated by the Jones Coal Co., New Straitsville, O. Jno. M. Jones, New Straitsville, O., is superintendent and mine boss. Drift opening, to the No. 6 seam of coal, which is from 10 to 12 feet in thickness, has natural ventilation, and employs 70 miners and 6 day hands. Inspected once and the mine well ventilated, there being many inlets and outlets. There is an opening to daylight on all entries. Pillars and stump drawing constitute the work in this mine, which is in as good condition as circumstances will permit.

No. 37.

Is located at New Straitsville, O., on a branch of the C., H. V. & T. R. R., and is operated by the Essex Coal Co., New Straitsville, O. Calvin Essex is superintendent and H. H. Essex mine foreman. It is a drift opening, to the No. 6 seam of coal, which is from 10 to 12 feet thick, ventilated by a fan, and employs 70 miners and 20 day hands. One inspection was made on August 6 and the ventilation found deficient, owing to the break-through system being neglected, with doors in bad repair and brattices leaking. Requested that the doors be repaired and brattices reclayed and that a uniform system of break-throughs be adopted.

XX No. 1.

Is located at Shawnee, O., on the B. & O. R. R., and is operated by Taylor, Williams and Jenkins, Shawnee, O. D. C. Jenkins, Shawnee, O., is superintendent and W. K. Redfern of the same place is mine boss. Drift opening, to the No. 6 seam of coal, which is 10 feet thick, ventilated by a fan, and employs 140 miners and 28 day hands. One inspection was made on August 8 and the ventilation found deficient in the room work, owing to lack of break-through system. Room No. 9 was found 140 feet ahead of air. Requested that the room be stopped. The major portion of work in this mine is pillar and entry stumps. Requested that uniform break-throughs be made in rooms.

XX No. 2.

Is located at Shawnee, O., on the B. & O. R. R., and is operated by Jenkins & Redfern, Shawnee, O. D. C. Jekins, Shawnee, O., is superintendent and D. W. Jones of the same place is mine boss. Drift opening to the No. 6 seam of coal, which is about 10 feet thick, ventilated by a furnace, and employs 35 miners and 2 day hands. One inspection was made on August 9 and the ventilation found deficient. Found 7,700 feet of air at the inlet, while at the head of the first and second west entries, where all the work is confined, no register of air could be found. Requested T. D. Harris' room be narrowed down and driven through to the entry that leads to daylight. This will supply the mine with air.

UPSON No. 1.

Is located at Shawnee, O., on the B. & O. R. R., and is operated by the Upson Coal Co., Newark, O. Reese Williams, Shawnee, O., is superintendent and also mine boss. This is a drift opening, to the No. 6 seam of coal, which is 10 feet in thickness, ventilated by a fan, and employs 17 miners and 7 day hands. One inspection was made on August 9. The ventilation was found too strong, doors being partially left open to prevent strong current of air. The work is confined to entry stumps along the main airway. Unless something out of the ordinary occurs, this mine will require little or no attention from the Mine Inspector, as it is about exhausted.

CONTINENTAL (302).

Is located at Congo, O., on the C., S. & H. R. R., and is operated by the Continental Coal Co., Columbus, O., with the same superintendent and mine boss in charge as the No. 1. Shaft opening, 40 feet deep, to the No. 6 seam, and is about 14 feet thick. A fan is used as a ventilating medium, and 184 miners and 60 day hands are employed here. One inspection was made during the year, on August 10, and the ventilation found in good condition. Not one grievance was found against either the No. 301 or the 302 mines, and the officers of them are well worthy of commendation for their diligence in keeping the ventilation conducted in a uniform manner and to such a degree that results are most satisfactory in every respect, and should be emulated by others concerned.

BLACK DIAMOND.

Is located at Rock Run, O., on a branch of the B. & O. R. R., and is operated by Taylor & Price, New Straitsville, O. J. H. Taylor, New Straitsville, O., is superintendent and Geo. Price of the same place is mine boss. Drift opening, to the No. 6 seam of coal, which is about 10 feet thick, has natural ventilation, and employs 25 miners and 2 day hands.

Inspected on August 15, and the ventilation sufficient. There are three openings, working along the crop coal, and an outlet is at the head of each main entry, which well ventilates the mine, and the conditions were good.

ROCK RUN.

Is located at Rock Run, O., and the output used at the Rock Run brick plant. D. C. Meacham, Columbus, O., is superintendent and J. W. O'Donnell, New Straitsville, O., is mine foreman. It is a drift opening, to the No. 6 seam of coal, which is about 10 feet thick, has natural ventilation, and employs 10 miners and 2 day hands. This mine has been worked without system or judgment. O'Donnell & Son have now assumed the management and will, I trust, in course of due time, improve the condition of the mine.

UPSON No. 2.

Is located near Shawnee, O., on the B. & O. R. R., and is operated by the Upson Coal Co., Newark, O. Reese Williams, Shawnee, O., is superintendent and mine boss. Drift opening, to the No. 6 seam of coal, which is 10 feet thick, ventilated by means of a fan, and employs 11 miners and 3 day hands. Inspected once, and found in practically the same condition as the Upson No. 1.

O. M. & M. Co.

Is located at Shawnee, O., and the output consumed by the brick plant of the O. M. & M. Co. It is operated by Davis Bros., Shawnee, O. Wm. Davis is superintendent and mine boss, Shawnee, O. Drift opening, to the No. 6 seam of coal, which is five feet thick, has natural ventilation, and employs 10 miners and one day hand. Visited on August 9, and found in fair condition.

CONTINENTAL No. 301.

Is located at Congo, O., on the C., S. & H. R. R., and is operated by the Continental Coal Co., Columbus, O. D. C. Thomas, Glouster, O., is superintendent and D. L. Wallace, Congo, is mine boss. Shaft opening, 40 feet deep, to the No. 6 seam, which is about 14 feet thick. A fan is used as a ventilating medium, and 196 miners and 79 day hands are employed. One inspection was made during the year. On August 11 the ventilation was found in excellent condition. This mine, with its vast territory, is in excellent condition, and is being practically pursued in every particular which speaks well for its management and is in first-class condition.

GIBBS.

Is located at Rock Run, on a branch of the B. & O. R. R., and is operated by A. Gibbs, New Straitsville, O., who is superintendent and mine boss. Drift opening, to the No. 6 seam of coal, which is about 10 feet thick, has natural ventilation, and employs 25 miners and 4 day men. Inspected on August 15 and the ventilation found sufficient, owing to several openings to daylight.

LYONSDALE.

Is located at Shawnee, O., on the B. & O. and C., S. & H. R. R., and is operated by Maynard Bros., Columbus, O. W. E. Williams, Shawnee, O., is superintendent and mine boss. This is a drift opening, to the No. 6 seam of coal, which is about 10 feet thick, and has natural ventilation. This mine is about exhausted, and will soon be abandoned. Twelve miners are employed.

IRON POINT No. 3.

Is located near Shawnee, O., on the B. & O. R. R., and is operated by D. S. Richards, Shawnee, O., who is superintendent and mine boss. The No. 6 seam of coal is penetrated by a drift opening, and the coal at this point is found to be about five feet in thickness. Ten miners and four day hands find employment here. Inspected on September 19 and, with the exception of a few minor requests, was found in fair condition.

HASELTON.

Is located near Shawnee, O., on the B. & O. R. R., and is operated by G. C. Gibbs, New Straitsville, O., who is superintendent and mine boss. It is a drift opening, to the No. 6 seam of coal, which is 10 feet thick, ventilated by a furnace, and employs 35 miners and 4 day hands. One inspection was made, and a pair of scales tested, on September 20. The ventilation was found deficient, owing to the entry break-throughs being open and the rooms from 90 to 100 feet without break-throughs and the doors without attendants. Thirty days were given in which to place the mine in good order. On my return visit it was found idle, and no inspection was made.

JOBS No. 1.

Is located near Iron Point, O., on a branch of the B. & O. R. R., and is operated by the Jobs (Ohio) Hocking Coal Co., Chicago, Ill. J. L. Hickman, New Lexington, O., is superintendent and Chas. E. Priest, Shawnee, O., is mine boss. The No. 6 seam of coal is penetrated and is 5 feet in thickness, ventilated by a fan, and employs 23 miners and 10 day hands. Inspected once during the year, on September 20, and the ventilation found in good order. This is a new mine and being pursued in a practical manner, and is in first-class condition.

JOBS No. 2.

Is located in close proximity to the No. 1, and the coal is dumped over the same screen and is under the same supervision as the No. 1, and was found in first-class condition; is ventilated by a fan and employs 23 miners and 4 day hands.

UPSON No. 1.

Is located at Dixie, O., on the B. & O. R. R., and is operated by the Upson Coal Co., Newark, O. Walter Upson, Newark, O., is superintendent and Jno. M. Bell, Dixie, O., is mine foreman. This is a drift, penetrating the No. 6 seam of coal, which is about four feet in thickness. There are two new openings here, one and two being located at this mine. The entries are in about 200 feet, and a fan will be soon in place and electrical machinery installed.

BRISTOL No. 2.

Is located at Bristol Junction, on the B. & O. R. R., and is operated by Geo. Blood, Dickson, O., who is superintendent, and H. R. Larimer of the same place is boss. It is a drift opening to the No. 6 seam of coal, which is about three feet thick. A fan will be installed to ventilate the mine. Twenty-seven miners and 13 day men are employed. On September 21 the ventilation was found deficient, owing to the condition of the furnace, a fan being under construction since the month of May, which only requires two days work to complete it. The miners were holding a meeting over the scale question. Requested that the fan be completed, and started before the miners resume their places of work.

BEAR RUN No. 1.

Is located at the tunnel on the C. & M. V. R. R., three miles east of New Lexington, O., and is operated by the Gosline Coal Co., Toledo, O. John Britt, New Lexington, O., is superintendent. It is a shaft opening, to the No. 6 seam of coal, which is about four feet thick. Thirteen miners are employed. On September 22 an inspection was made. This is a new opening, and is being pursued in a practical manner under the triple entry system. At the time of my visit the fan was not yet installed. Yet, with a temporary fire-basket hung at the bottom, the ventilation was sufficient and the mine in first-class condition.

IMPERIAL No. 6 VEIN.

Is located a Nugentville, O., on the C. & M. V. R. R., and is operated by the Imperial Coal Co., Columbus, O. J. H. Gray is superintendent and mine boss, and resides at Zanesville, O. Drift opening, to the No. 6 seam of coal, which is about four feet thick, ventilated by a fan, and employs 24 miners and 9 day hands. Inspected on September 22, the mine just having resumed operation, and the conditions were fairly good.

IMPERIAL NO. 5 VEIN.

Is operated by the same company as the No. 6 Vein, and is under the same management, which is a drift opening, to the No. 5 seam of coal, which is about three feet thick, ventilated by means of a fire-basket. Visited on September 22, at which time they were engaged in cleaning up the mine and no fire was found in the basket. Requested that a fire be made and kept burning until the mine resumed operations. The inlet was caved in, leaving but a small opening, and the outlet was in the same condition. Requested that the inlet and outlet be opened up and that a new cross-cut be made for ventilation.

BEECH GROVE.

Is located at McLuney, O., on the C. & M. V. R. R., and is operated by the Opperman Coal Co., McLuney, O. Lon Tague, McLuney, O., is superintendent and Lewis Morrow of the same place mine boss. Drift opening, to the No. 6 seam of coal, which is 3 feet 6 inches in depth, ventilated by a fan, and employs 65 miners and 34 day hands. On September 13, when visited, the mine was just beginning to resume operations. With the exception of a few brattices being out of order, which were requested repaired, the mine was in good sanitary condition.

LILLY.

Is located one mile east of New Lexington, O., on the C. & M. V. R. R., and is operated by the White Ash Coal Co., Columbus, O. Hugh Dalrymple, Crooksville, O., is superintendent and S. Bland, New Lexington, O., is mine boss. A furnace is used as a ventilating medium, and 12 miners and 4 day men are employed. On September 22, when inspected, the ventilation was found deficient, owing to no conductors. At this time they are driving a cross entry for ventilation, which will improve conditions when completed.

KEYSTONE NOS. 1, 2, 3 AND 4.

Are located near McLuney and Crooksville, O., on the C. & M. V. R. R., and P. O. McKinney, Zanesville, O., is superintendent. At the No. 1 Thos. Opie, Crooksville, O., is mine boss. It is a drift opening, to the No. 6 seam of coal, which is about three feet in thickness, ventilated by means of a fan, and employs 58 miners and 21 day hands. Inspected on October 7 and the ventilation found in good condition, the only grievance found was that I requested that black oil tanks be removed from the mine. These mines are all operated by the Zanesville Coal Co., Zanesville, O.

KEYSTONE No. 2.

Robert Robb is mine boss, and resides at McLuney, O. This is also a drift opening, to the same seam and of the same thickness as the No. 1, ventilated by a furnace, and employs 60 miners and 17 day hands. On September 13 this mine was inspected and found full of black-damp; instructions were given that a fire be kept in the furnace night and day, and that all the damp must be expelled before the miners resume work.

KEYSTONE No. 3.

C. A. Mullen, is mine boss, and resides at Crooksville, O. Drift opening, to the No. six seam of coal, which is about four feet thick. A furnace is used as a ventilating medium and 38 miners and 8 day hands find employment. One inspection was made on November 30, and the ventilation was found deficient at the head of the entries owing to three and four breakthroughs being open on each pair of entries. Requested that they all be closed with the exception of the last one on each entry; otherwise the mine was in good condition.

KEYSTONE No. 4.

J. P. Clements, McLuney, Ohio, is employed as mine foreman. It is a drift opening, penetrating the No. 6 seam of coal, which is 3 feet 6 inches in thickness at this place, ventilated by a furnace and employs 28 miners and 9 day hands. One inspection was made on October 19, and the ventilation found deficient owing to breakthroughs being irregular and filled with refuse. Requested that the breakthroughs be cleaned out and a uniform system of breakthroughs adopted.

NEW CRESCENT.

Is located near Roseville, O., on the C. & M. V. R. R., and is operated by the Kennon Coal & Mining Co., Cleveland, O. R. T. Price, Cleveland, O., is superintendent and E. A. Davis, Roseville, O., is mine boss. It is a drift opening, to the No. 6 seam of coal, which is 3 feet 6 inches in thickness. It is ventilated by means of a furnace, and 50 miners and 11 day hands are employed. Three inspections were made during the year. On September 15th the ventilation was found deficient owing to the return air way being caved in and no outlet. Requested that outlet be made. On November 15 the mine was found in general bad condition, there being no manway and the return airway being closed by a squeeze. On my visit to this mine on September 15 instructions were given for an airway or outlet to be driven, but they were not carried out. Action was deferred for a few days for reasons known to the Mining Department. On November 28, since my visit

on November 15th three doors have been hung and four brattices placed which has benefited the ventilation in a portion of the mine, yet the mine is without an outlet with a dangerous squeeze on. The superintendent, Mr. Davis, has agreed with me that a new opening at the head of the mine is the proper adjustment, which we trust will be completed at the earliest possible date.

CLOVER HILL No. 1.

Is located at Redfield, O., on the C. S. & H. R. R., and is operated by the Twentieth Century Coal Co., Columbus, O. Wm. Wallace, Redfield, O., is superintendent, and Richard Smith, Redfield, O., is mine foreman. Drift opening, to the No. 5 seam of coal, which is four feet in thickness, ventilated by a fan and employs 24 miners and 11 day hands. Two inspections were made. On September 15 the ventilation was not altogether satisfactory, some changes were in progress that would materially benefit the mine. On December 28, with the exception of a few minor requests the mine was in good condition.

CLOVER HILL No 3.

Is located at the same place as the No. one and under the same management. Drift opening, to the No. 5 seam, which is about four feet thick, ventilated by a furnace and 24 miners and 11 day hands find employment. Inspected twice during the year. On September 15 the ventilation was found in fair condition, the main entries being very muddy with water over the track. Requested that the road be made available for travel. On December 28, found the entry traveling way dried up making it available. Requested that a regular attendant be placed over the furnace of the two mines. With the exception of a few requests of minor importance, the mine was in good order.

UNION.

Is located one mile east of Crooksville, O., on the C. & M. V. R. R., and is operated by the Saltillo Coal Co., Columbus, Ohio. T. H. Carter, Crooksville, O., is superintendent and mine boss. This opening is a drift, to the No. 6 seam of coal, which is 3 feet 6 inches in thickness. A furnace is used as a ventilating medium and 30 miners and 7 day hands are employed. Inspected twice during the year. On October 8 the ventilation was found deficient owing to the air chambers being filled up and irregular breakthroughs in the rooms. Instructions were given to have the airways cleaned out and that a lawful breakthrough system be put in practice. On November 30, mine was found in an improved condition. The airways were cleaned up and a uniform breakthrough system adopted and the mine in good condition.

INDIAN RUN.

Is located one and one quarter mile north of Hartley Station on the Glouster Branch of the C. S. & H. R. R., and is operated by the Indian Run Mining Co., Glouster, Ohio. J. H. Sellers, Wellston, O., is superintendent and H. Phelps, of the same place is mine boss. This is a drift opening, to the No. seven seam of coal, which is about five feet thick. A fan is used for ventilating purposes. Eight miners are employed. On my visit to this mine on October 12, a shaft had been sunk under the tippie to the No. 6 seam of coal, which will be developed in the spring and the coal hoisted on the same tippie. An extensive plant is under construction with the latest improved machinery.

PEDLOW.

Is located at Misco, O., on the C. S. & H. R. R., and is operated by the Sunday Creek Coal Co., Columbus, Ohio. J. W. Bryan, Misco, Ohio, is superintendent and Herman Tyson, of the same place is mine boss. This is a shaft opening, 32 feet in depth to the No. 6 seam of coal, which is 3 feet 6 inches in thickness. A fan is used for ventilating purposes. Seventy-five miners and 25 day hands are employed. One inspection was made on October 17 and the ventilation found deficient, owing to the airway breakthroughs being nearly filled up both in entries and rooms. The miners are largely responsible for this confused condition. Requested that all airways be cleaned out and that hereafter the parties who filled up the airways with refuse would be compelled to remove it.

REND NO. 1 AND NO. 2.

Are located near Crooksville, O., on the C. S. & H. R. R., and are operated by the Standard Hocking Coal Co., Chicago, Illinois. J. W. Jones, Crooksville, Ohio, is superintendent and mine boss. This is a drift opening, penetrating the No. 6 seam of coal, which is about four feet thick. A fan is used to ventilate this mine and 29 miners and 19 day hands are employed in the No. one and 10 miners and four day hands in the No. two mine. One inspection was made on November 28 and the mine found in good condition.

BRIAR HILL.

Is located at Misco, Ohio, on the C. S. & H. R. R., and is operated by the Sunday Creek Coal Co., Columbus, Ohio. J. W. Bryan, Misco, is superintendent and W. G. Bennett, Corning, O., is mine boss. This opening is a slope 125 feet in depth to the No. 6 seam of coal, which is three feet eight inches in thickness, ventilated by means of a fan and employs 50 miners and 18 days hands. Inspected once during

the year, and the ventilation in good condition with the exception of one blind cut off entry, five breakthroughs were found open and instructions were given for them to be closed if they desired to drive the entry, otherwise the mine was in good condition.

HAMILTON AND WALLACE.

Is located at Saltillo, O., on the C. S. & H. R. R., and is operated by the Hamilton & Wallace Coal Co., Redfield, O. George Wallace, Redfield, is superintendent and Samuel Steel, New Lexington, O., is mine foreman. This opening is a drift, penetrating the No. 6 seam of coal, which is three feet eight inches in thickness, ventilated by a fan and employs 30 miners and 11 day hands. Inspected on December 27 and with the exception of a few minor requests the mine was found in good condition.

LYONSDALE.

Is located at the tunnel two miles west of McLuney, Ohio, on the C. & M. V. R. R., and is operated by the Muskingum Coal Co., Detroit, Michigan. Geo. Greene, Zanesville, O., is superintendent and John Williams, Lyonsdale, O., is mine foreman. This is a drift opening, to the No. 6 seam of coal, which is about three feet six inches in thickness. A fan is the ventilating medium. Eighty-nine miners and 23 day hands are employed. One inspection was made on October 19; the ventilation was in good condition at this time.

ROCK RUN (CLAY).

Is located at the Brick Plant at Rock Run, O., on a branch of the B. & O. R. R., and is operated by the Iron, Clay and Brick Mining Co., Columbus, Ohio. D. C. Meecham, Columbus, O., is superintendent and Wm. Davis, New Straitsville, O., is mine boss. This is a drift opening, to the No. 5 seam of coal, which is six feet thick, has natural ventilation and employs 12 miners and 6 day hands. Visited on August 15 and found in good condition.

O. M. & M. C. CLAY.

Is located at Shawnee, Ohio, on the C. S. & H. R. R., Stephen Gould, Shawnee, O., is superintendent, and E. W. Davis, Shawnee, O., is mine boss. This is a shaft opening, 70 feet in depth penetrating the No. 4 seam of clay, which is from 6 to 7 feet thick. A fan is in use to furnish ventilation. Sixteen miners and five day hands are employed. One inspection was made on August 9 and the ventilation found deficient owing to the air being confused and passing out through old workings. At this time there is a new airway under construction. In-

structions were given that as soon as the airway breaks through that the old works be bratticed off and doors be placed. Neither doors or brattices are in use at present.

SAN TOY No. 2.

Is located at San Toy on the B. & O. R. R., and is operated by the New England Coal Co., Columbus, Ohio. E. L. Donnelly, San Toy, Ohio, is superintendent and Frank Garrett, of the same place is mine boss. This is a shaft opening, 212 feet in depth to the No. 6 seam of coal, which is four feet thick. A fan is used as a ventilating medium and employs 50 miners and 29 day hands. One inspection was made during the year on June 22, and the ventilation found deficient owing to the stairway shaft taking air from the fan. Request was made that the stairway be sealed otherwise the mine was in good condition. Requested that safety catches be put on the cages.

MUSKINGUM COUNTY.

CADILLAC No. 1.

Is located at Duncan Run, Ohio, four miles below Zanesville, O., on the Z. & O. R. R., and is operated by the Duncan Run Coal Co., Detroit, Michigan. W. H. Blaney, Dillon, O., is superintendent and R. Robinson, Philo, O., is mine boss. This is a drift opening to the No. 7 seam of coal, which is 6 feet thick, ventilated by a furnace and employs 10 miners and one day hand. One visit was made on September 16 and the mine in good condition.

CADILLAC No. 2.

Is located in close proximity to the No. 1 mine and is under the same management; the No. 7 seam of coal is penetrated, which is six feet thick, ventilated by a furnace and employs 17 miners and 4 day hands. Inspected on September 16 and found in good condition.

MUSKINGUM COAL & RAILWAY CO.

Is located three miles south of Zanesville, O., on the Z. & O. R. R., and operated by the Muskingum Coal & Railway Co., Zanesville, O. N. W. Spencer, Zanesville, is superintendent and mine boss. It is a drift opening, to the No. 6 seam of coal, which is about three feet thick, ventilated by a fan and employs 30 miners and 9 day hands. Visited on September 16 and found in good condition.

No. 37 (HAYMARKET).

Is located at Cannellville, Ohio, on the C. S. & H. R. R., and is operated by Fobes & Thompson, Columbus, Ohio. E. Thompson, Columbus, O., is superintendent and John Leach, Dillon, O., mine boss. This is a drift opening to the No. 6 seam of coal which is about four feet thick, ventilated by means of a furnace and employs 16 miners and 6 day hands. On my visit to this mine on September 20 the mine had just resumed operation, and I found the inlet partly filled up. The mine has a splendid furnace and a request was made to have air shaft sunk at the head of the works.

MAYNARD No. 16.

Is located near Cannellville, Ohio, on the C. S. & H. R. R., and is operated by Maynard Bros., Columbus, O. R. B. Mauk, Dillon, Ohio, is mine boss; this is a drift opening opened to the No. 7 seam of coal which is four feet thick, ventilated by a furnace and employs 65 miners and 10 day hands. On October 20 at the time of my visit with the exception of one room being ahead of the air the mine was in good condition.

SALT RUN.

Is located at Romaine Station, on the B. Z. & C. R. R., and is operated by the Fair Oaks Coal Co., Zanesville, Ohio. A. B. Muller, Zanesville, O., is superintendent and mine boss. A furnace is in use as a ventilating medium. The No. 7 seam of coal is penetrated and 15 miners and 2 day hands find employment. The coal is six feet in thickness at this point. One inspection was made on October 26 and the mine found in good condition.

MORGAN COUNTY.

ROSE.

Is located at Deavertown, on the C., S. & H. R. R., and is operated by the Carding Coal Co., Columbus, O. S. C. Carding, Rose Farm, O., is superintendent and Geo. Carding of the same place is mine boss. This is a drift opening, to the No. 6 seam of coal, which is about four feet thick. A fan is used for ventilating purposes, and 40 miners and 6 day hands are employed. Two inspections were made during the year. On September 14 the mine was getting ready to resume operation. The mine was free from black-damp and the conditions generally good for the long suspension. On November 28 the ventilation was found deficient, owing to the break-through system being bad and irregular. Found the first

north cut-off ahead of air, which was requested stopped until provided with air. Also requested that a uniform system of break-throughs be adopted.

BLACK DIAMOND.

Is located one-half mile from Deavertown, O., on the C., S. & H. R. R., and is operated by the Tropic Mining Co., Toledo, O. T. E. Undewood, Crooksville, O., is superintendent and Geo. Lamb, Rose Farm, O., is mine boss. This opening is a slope, penetrating the No. 6 seam of coal, which is about four feet thick. A fan is a ventilating medium, and 70 miners and 28 day hands are employed. One inspection was made on September 14, and, notwithstanding the long shut down, the mine was in first-class condition.

FOURTH DISTRICT.

THOS. MCGOUGH.

MONROE, BELMONT, HARRISON AND A PORTION
OF JEFFERSON.

HON. GEORGE HARRISON, *Chief Inspector of Mines, Columbus, O.*

DEAR SIR:— I have the honor to submit the report of the mines in the Fourth District from November 15, 1903, to January 1, 1905, with their location, condition, number of inspections made, and the improvements ordered; the number of new mines opened up, those that suspended operations and the number abandoned; also the number of fatal accidents, with causes of same.

The mines in this district, with but very few exceptions, worked only half time during the period covered by this report. On May 1 a strike was ordered by the Miner's Organization, which lasted about six weeks. The question under dispute was whether the miners in machine rooms should take up the bottom coal, which is from four to six inches thick. A compromise was effected, by which the miners were to remove the coal where it was easy to lift and where difficult they were to be paid for the work or leave it down.

There were eight new mines opened up this year, all of which will be large machine mines, equipped with all modern improvement. Two of these are shaft openings, and will generate fire-damp, but the ventilating apparatus will be of the best types. Three mines were suspended and two abandoned. Nearly all the coal territory in the No. 8 seam has been taken up, and nearly all by parties who expect to develop same.

Improvements during the year were as follows: Four (4) furnaces, twelve (12) fans, ten (10) airshafts, twenty-eight (28) second openings, two (2) fire-baskets, making in all fifty-six (56).

The practice of the promiscuous firing of shots with excessive use of powder in the same (attention to which was called in a previous report), still continues. This causes a great deal of smoke in the mines, despite improved facilities for ventilation. It is also a frequent cause of fatal accidents, as men rush in to load cars before they are able to see whether the stone is safe or not. Neglect is also manifested on the part of machine men in making cross-cuts in rooms at proper distances; as no powder is used by him he does not feel the need of them, but the loader cannot make them unless cut, and as he uses the powder feels the full effect of this neglect when the cutter fails to do his duty. Managements should pay more attention to this practice, and should see that the cross-cuts are not all allowed to become filled up with stone, etc., but that they are kept cleaned out at all times. The mine boss is often to blame for neglecting to mark cross-cuts, and is more often to be found on the tibble attending to matters there than at his proper work on the inside of the mine.

Forty-one (41) fatal accidents occurred during the year. Twenty-eight (28) were caused by falls of stone or roof, seven (7) from cars or motors, and six (6) from other causes mentioned in reports forwarded to the office, one from a portion of the tibble falling on him, one from

heart disease, one burned with powder, one coming in contact with a trolley wire, one shot through a pillar, and one being murdered.

The greatest danger encountered to life and limb in the No. 8 Vein of Pittsburg coal is the overlaying strata of soapstone, that runs in thickness from an inch to four feet. This must be taken down in mines where machines are used, and when it falls it is generally without warning, as it is full of slips and unsafe to work under unless well posted. To do this properly takes years of experience of work in this seam of coal before its dangerous nature is understood and appreciated.

Owing to the great development in the last few years and the installation of mining machinery, as well as the employment of so many unskilled workmen in the mines, the percentage of fatal accidents has greatly increased. For the purpose of remedying this state of affairs the Chief of the Department called a meeting of the operators and miners' officials and the two inspectors of mines in this particular locality (No. 8 seam), and after due consideration of the subject rules were formulated which it is hoped will tend to reduce the number of fatalities. All mines are worked on the double entry system with but few exceptions.

Thanking you and your predecessor, Hon. E. G. Biddison, for advice and assistance rendered, I am,

Very truly yours,

THOS. MCGOUGH,

Inspector Fourth District, Bridgeport, O.

BELMONT COUNTY.

MOORES RUN.

Is situated on the C., L. & W. R. R., near Bridgeport, O., and is owned and operated by the Moores Run Coal Co., Wheeling, W. Va. F. P. Jones, Wheeling, W. Va., is superintendent and Wm. Heller, Bridgeport, O., is mine boss. Seven visits were made during the year, two of which were for the purpose of investigating fatal accidents, one occurring in the mine and the other on the tippie. Drift mine, opening into the No. 8 seam of coal, five and one-half feet high at this point. Electric machinery and a new fan have been installed; a temporary tippie is still in use, but a new one will be erected in the near future. The conditions of this mine for the year have been fair. Fifty (50) miners and 14 day hands are employed. Fan ventilation.

WHEELING CREEK No. 1.

Is located on the C., L. & W. R. R., one mile from Bridgeport, O., and is owned and operated by the Lorain Coal & Dock Co., Columbus, O. J. E. Waters, Bridgeport, O., is superintendent and Ed Stoker of the same place mine boss. Mine was abandoned during the year. This has been one of the largest mines in the district, and was in operation over twenty years.

WHEELING CREEK No. 2.

Is located near the No. 1 mine, and is managed and owned by the same company. Gilbert Hanson is mine boss. Inspected twice, and once to investigate fatal accident. This mine is excellently managed, with a very small percentage of fatal accidents for the size of the mine. It was necessary to install a second fan, which has greatly increased the ventilation. The company had the misfortune to have their fine new powerhouse burned this year, but operations resumed again in a few days. Drift opening, No. 8 seam, coal five to five and one-half feet high, fan ventilation, and 350 miners and 50 day men are employed.

LANSING No. 1.

Is located on the C. L. & W. R. R. near Lansing, Ohio, and is operated by the same parties as the Wheeling Creek mines. James Johnson, Bridgeport, Ohio, is superintendent, and Wm. Slater, mine boss. Drift opening, No. 8 seam of coal which is from 5 to 5½ feet high. Five visits were made during the year and the mine in fair order. It has been equipped with electric machinery and a new fan installed since

the last report was written. On August 4, the cross cuts in rooms were found to be far beyond the lawful limit. Strict orders were given to have this remedied at once, and on the next inspection matters were greatly improved. The scales were tested on this occasion and found correct. Two hundred and twenty-five miners and fifty day men employed.

LANSING No. 2.

Is situated near No. 1 mine, and managed by the same company, the coal being dumped over the same tippie, but it is the intention to make this the main opening in the near future for both mines and a large electric fan will be erected. About 6 men are employed in the entries.

CRESCENT No. 2.

Is located on the C. L. & W. R. R. near Crescent, and owned by the same company as the Lansing mines. James Birkbeck, Bridgeport, Ohio, is superintendent, and Wm. Applegarth is mine boss, Crescent, Ohio. Drift opening, No. 8 seam, coal 5 to $5\frac{1}{2}$ feet high. Two visits were made but the mine was abandoned early in the year.

CRESCENT No. $2\frac{1}{2}$.

Located near the No. 2 and owned and operated by the same parties, with Wm. Embleton, Crescent, Ohio, as mine boss. Three inspections were made. Drift opening, fan ventilation, electric haulage, machine mine, 150 miners and 40 day hands employed.

CRESCENT No. 3.

Is under the same management as the above, with G. Holiday, as mine boss. Drift opening into the No. 8 seam, coal 5 to $5\frac{1}{2}$ feet high. Three visits were made and on one occasion the air course was nearly closed up owing to the mine being idle during a strike. Orders were given to change the air, and use the old No. 2 mine as an outlet. This was done, and greatly improved conditions. Fan ventilation, 150 miners and 44 day men employed.

CRESCENT No. $3\frac{1}{2}$.

Same management and location as the No. 3. R. Delbridge, Maynard, Ohio, is mine boss. Four visits were made during the year, one of which was to investigate a fatal accident. Mine was in fair order. Drift opening, fan ventilation and employs 100 miners and 12 day men.

CRESCENT No. 4.

Under the same management as the No. $3\frac{1}{2}$ mine, the coal being dumped over the same tippie. It has been connected with No. $2\frac{1}{2}$ mine

by a face entry, and an electric fan installed since the last report. Three visits were made. (Twelve miners and 2 day men employed.

MAPLE HILL.

Situated on the C. L. & W. R. R. near Barton, Ohio, and owned and managed by the Y. & O. Coal Co., Cleveland, Ohio. Drift opening into the No. 8 seam of coal which runs from 5 to 5½ feet high. F. W. Jones, Barton, Ohio, is superintendent, and Wm. Wagner, Barton, Ohio, is mine boss. Four visits were made, one to investigate a fatal accident; mine was in fair condition, and during the summer No. 18 entry was driven outside and greatly improved the ventilation. It will also be used for a travelling way. Scales were tested and found correct. Fan ventilation is in use, and 125 miners and 26 day men are employed.

BARTON.

Situated on the same railroad near Barton, Ohio, and owned by the same company as the Maple Hill mine, with W. A. Williams as mine boss. Drift opening to the No. 8 seam of coal which is 5 to 5½ feet thick. Five visits were made and it was necessary to request a great deal of timbering to be done on the entries in some parts of the mine as there is a very bad roof to contend with. One fatal accident occurred. On November 28, ventilation was found to be deficient and the air was ordered changed. This was done and on December 6, found the mine in an improved condition, and some other changes inaugurated which gave general satisfaction. Electric gathering motors are installed which have proven a success. Endless rope haulage is in use. Fan ventilation, 250 miners and 50 day hands employed.

Boggs No. 2.

Situated on the St. Clairsville branch of the C. L. & W. R. R. and is owned and operated by E. N. Boggs, Barton, Ohio. John Baugh, St. Clairsville, Ohio, was mine boss during a portion of the year, but has been succeeded by Dan Harper, Barton, Ohio. Five inspections were made, one to investigate a fatal accident. Electric mining machines were installed and the mine in fair order. On December 23, a brattice had been knocked out by a fall between the inlet and the outlet and the men quit work until an inspection was made. Some other improvements were ordered in the ventilation at that time and when next visited conditions were satisfactory. Roof is very tender in some parts of the mine, and considerable timbering was ordered, but this work is well in hand, at the close of the year. Drift opening, No. 8 seam, coal 5 to 5½ feet high; fan ventilation, 175 miners and 31 day men.

TAGGARTS.

Situated near Boggs on the same railroad and owned and operated by the Barton Coal Co., Cleveland, Ohio. John Selway, St. Clairsville, Ohio, is superintendent, and Stephen Selway, of the same place is mine boss. Three inspections were made, and on each occasion the mine was found in good order. Compressed air machines are used and an electric motor. Drift opening, fan ventilation, No. 8 seam, $5\frac{1}{2}$ feet high and employs 60 miners and 12 day men.

LYDIA.

Is located near Maynard on the C. L. & W. R. R. and is owned and operated by the Purseglove Coal Co., Maynard, Ohio. J. S. Purseglove, is superintendent and Sam Purseglove was mine boss. Drift opening into the No. 8 seam of coal $5\frac{1}{2}$ feet high. Five visits were made one due to a fatal accident. Connections have been made through the hill to an opening on Jug Run. Compressed air machines are used. Horses are used for hauling purposes. Furnace ventilation, and employs 65 miners and 13 day men.

TROLL No. 1.

Is situated on the Wabash R. R. near Maynard, Ohio, and is owned and operated by Troll Bros., St. Clairsville, Ohio. Drift opening to the No. 8 seam, the coal being $5\frac{1}{2}$ feet high. Jesse Troll, is superintendent and Mike O'Grady, mine boss. Four visits were made, and general conditions fair. This is an exclusive pick mine, furnace ventilation and the roof very bad in this mine, most of the entries having to be solidly timbered to make them safe. On November 8, the ventilation was very much impaired, and suggestion was made that one entry be double shifted and driven outside for an inlet. This was completed by the middle of December, and the mine found in good order, 180 miners and 35 day men employed.

TROLL No. 2.

Located about one mile from the No. 1 on the same road and owned and managed by the same company, but James Skelnar is mine boss. Three visits were made. On November 26th, Frank Harbak, a water hauler, was found dead in the morning between the mine mouth and the tipple. On investigating it was found that his neck was broken, and the supposition was that he had fallen from the front end of the car. The mine on each occasion was found in good order. Pick mine, drift, to the No. 8 seam, coal $5\frac{1}{2}$ feet high, furnace ventilation and employs seventy-five miners and twelve day men.

TROLL No. 3.

Is located opposite the No. 2 mine, the coal being run over the same tippie. This is comparatively a new mine, and been operated a month or so, and is under the same management as the Troll No. 2 mine. It is the intention to connect this mine with the No. 1 at some future time. Two visits were made. A new furnace has been built and an air shaft sunk. Four men are employed.

COLUMBIA.

This is a new mine located near Fairpoint, Ohio, on the C. L. & W. R. R., and operated by the Columbia Coal Co., Akron, Ohio. David Selway, Fairpoint, Ohio, is superintendent and Henry Selway, mine boss. Drift opening to the No. 8 seam, the coal being $5\frac{1}{2}$ feet high, with a very good roof. Three visits were made, and while the mine is a pick one, on my last visit a power house had been built and preparations being made to install electric machinery. New furnace was built, and air shaft sunk. Seventy-five miners and 18 day men employed.

BLACK OAK.

New mine located near Lafferty, Ohio, on the C. L. & W. R. R., which is a shaft mine 80 feet in depth. Owned by the Kennon Coal Co., Cleveland, Ohio. John Whalen, Flushing, Ohio, is superintendent, and Lee Nixon, of the same place is mine boss. The No. 8 seam of coal is pierced and is about five feet in thickness. Electric machines were installed during the year. Requested a slope made as a travelling way. Inspected three times during the year, and on my last visit the slope had not yet been completed. This mine generates fire damp, and while a good fan is installed, it has been placed in a wrong position, as the outlet for the air was entirely too small. This was ordered corrected at once, which was done, and the air current greatly improved thereby. Slope opening two hundred feet in depth; 65 miners and 25 day hands are employed.

KENNON.

Is located near Flushing on the same railroad as the Black Oak mine, and managed by the same company, with John Millwood, Flushing, Ohio, as mine boss. Drift opening, No. 8 seam, coal about four feet high. Inspected twice. During the local suspension the air course caved in and when work was resumed the ventilation was in a terrible state. Suggestions were made to remedy this, and on my following visit conditions were greatly improved. Roof is bad all over the mine, and there is also a great deal of water to contend with. Electric haulage and mining machines are installed. Fan ventilation, 71 miners and 37 day men employed.

SUMMIT No. 1.

New mine located near Flushing, Ohio, on the C. L. & W. R. R., and owned and operated by the Summit Coal Co., Cleveland, Ohio. John Winefordner, Flushing, Ohio, is superintendent, and Emmet Clayton, of the same place is mine boss. This mine has an exceptionally bad roof, and little progress has been made during the year, the mine having changed hands several times. Compressed air machines are used, and mule haulage. Drift opening, fan ventilation, No. 8 seam, $3\frac{1}{2}$ feet high. Eight miners and 4 day hands find employment here. Three inspections were made during the year.

SUMMIT No. 2.

Located opposite the Summit No. 1 mine, and under the same management, coal being dumped over the same tippie; conditions about the same as the No. 1, with the exception that the roof is better, consequently the mine is naturally in better order. Inspected the same number of times as the No. 1 mine. Eight (8) miners and 5 day men employed.

BUCKEYE.

Located between Flushing and Holloway, on the C. L. & W. R. R., and operated by the Buckeye Coal Co., Cleveland, O. C. A. Jewel superintendent and Geo. Finley mine boss, both of Flushing, O. Drift opening, No. 8 seam, coal three and one-fourth feet high. Compressed air machines are intalled and furnace ventilation. Visited twice, and mine in fair order. Forty (40) miners and 16 day men employed.

FLUSHING.

Situated on the C., L. & W. R. R., at Flushing, O., and owned and managed by the Flushing Coal Co., Flushing, O. W. G. Williams superintendent and Wm. Evans, mine boss, both residing at Flushing, o. Compressed air machines are used and fan ventilation. This mine was idle four months, due to a local difference of the wage scale. Inspected three times. Motor haulage; fifty (50) miners and 20 day men. The roof in this mine is excellent, and the mine dry. This is a drift opening, to the No. 8 vein of coal, which is four feet in thickness.

SCHICKS.

Located on the B. & O., and operated by M. J. Schick Coal Co., Bellaire, O. P. Strosser, Bellaire, O., is superintendent and mine boss. Drift opening, No. 8 seam, coal about five feet high. Pick mine and coals engines on the B. & O. R. R. This is a very old mine, and considerable difficulty is encountered in ventilating it properly, although a good

fan is installed. Some improvements were ordered. Inspected four times during the year; 50 miners and 14 day men employed.

NEFFS NO. 1.

Situated near Neffs, O., on the B. & O. R. R., and managed by the Neff Coal Mining Co., Neffs, O. Franklin Neff is superintendent and Jno. Petrel mine boss, both residents of Neffs, O. Drift opening, No. 8 seam, coal about five and one-half feet high. Two inspections were made and the mine found in good order. The electric fan was in operation and giving good results. This is a new mine and thoroughly equipped with modern conveniences, and will be one of the large mines in this district. One hundred and ten miners and 27 day men are employed here. Electric motors are used to haul the coal.

NEFFS NO. 2.

Located on the St. Clairville branch of the B. & O. R. R., and owned by the same company as the No. 1 and under the same superintendent, with Jno. Lovejoy, Neffs, O., as mine boss. Drift opening, to the No. 8 seam, five and one-half feet high. So far only entries have been driven, but electric machinery will be installed in the near future and this too will also be a large mine. About six men are employed.

O. & W. VA.

Situated on the St. Clairsville branch of the B. & O. R. R., and owned and managed by the Belmont Coal Co., Pittsburg, Pa. Three superintendents have been in charge of this mine different periods during the year, Mr. Munroe, Neffs, O., being the present one in charge. Louis Sklenar, Steel, O., is mine boss. Drift opening, No. 8 seam, coal five and one-half feet high. Mine has been suspended during the most part of the year. Picks are used to mine the coal. Visited twice and mine in fair order, a second opening having been made; 160 miners and 27 day men employed. Rope haulage is in use and fan ventilation. A remarkable feature connected with this mine is that it has never been visited with a fatal accident during my term of office.

BLACK DIAMOND.

Located about one mile from the above mine, and is owned and managed by the same parties, with Jno. Atkinson, Neffs, O., as mine boss. Same kind of opening, and the same thickness of coal. Two inspections were made, one to investigate the cause of a fatal accident. On first visit the mine was in poor condition in regard to ventilation and drainage. Some suggestions were offered to remedy these defects, and on my next

visit conditions were much improved; 150 miners and 27 day hands employed. Rope haulage and fan ventilation are installed.

KING'S RUN.

Situated one mile from Black Diamond, and owned by the same parties. New mine, having worked but very little, as operations are waiting or depending on the Wabash Railroad being brought in connection with the mine.

GLEN.

Located near Glencoe, O., on the main line of the B. & O. R. R. and managed by the same company as the Black Diamond mine, with Jno. Crawford, Glencoe., as mine boss. Slope opening, 100 feet in length, into the No. 8 seam of coal, which is about five and one-half feet high. Compressed air machines are used and a chain hoist. Fan is the ventilating medium. On May 24 a portion of the air course had fallen in, badly obstructing the air current, and orders were given to have it cleaned out at once. On my next inspection this had been accomplished, and the mine in fair order. Preparations are being made to install electric machinery. Three visits were made; 100 miners and 30 day men employed. A New 18-foot fan has replaced the old 6-foot one, in use for twelve years previous.

DELORA No. 1.

Located near Glencoe, O., on the B. & O. R. R., and is owned and operated by the Manufacturers' Fuel Co., Glencoe, O. H. L. Boleman is superintendent and Wm. Bunney mine boss, both of Glencoe, O. Shaft opening, 65 feet deep, into the No. 8 seam of coal, 5½ feet high. Three inspections made, one to investigate a fatal accident, i. e., that which was recorded as a fatal accident, but in reality a most diabolical murder, deliberately planned and executed. The man had been struck on the back of the head, near the base of his brain, with a sledge and then some stones pulled down on it to make it appear that he had been crushed by the stone. The bloody sledge was found concealed in the gob; also some pieces of paper, with which the murderer had tried to remove the traces of his crime. A rigid investigation was made, in company with the coroner and police officers, and a verdict rendered in accordance with the facts developed in the case. Owing to all parties concerned being unable to speak English, and being compelled to give their testimony through an interpreter, it was impossible to fasten the guilt on the person suspected, who remains a free person up to this time. The third entry system is in use, with an overcast for ventilating purposes. At the end of the year electric machinery is being installed. Fan ventilation; 260 miners and 55 day men employed.

DELORA No. 2.

Situated nearly three miles west of the No. 1 mine, on the same line and owned by the same company, with the same superintendent. Very little work has been accomplished during the year. Shaft, 75 feet deep, No. 8 seam, coal $5\frac{1}{2}$ feet high.

FRANKLIN.

Located on the main line of the B. & O. R. R., at Franklin, O., and owned by the Hart Coal Co., Fairmont, W. Va. Drift opening, into the No. 8 seam, coal $5\frac{1}{2}$ feet high. E. P. Wise is superintendent and David Evans mine boss, both of Stewartsville, O. Mine has worked but very little since the last report. Inspected twice; once due to a fatal accident. Furnace ventilation; 50 miners and 17 day men employed. Electric haulage in use.

WEGEE.

Situated on the Ohio River, about five miles below Bellaire, O., and owned and managed by the same parties as the Franklin mine, but has been suspended all year. Slope opening, 150 feet in depth. Fan ventilation.

PIPE CREEK.

Located on the bank of the Ohio River, and also loads coal on the C. & P. R. R. Slope mine, 150 feet long, No. 8 seam, coal $5\frac{1}{2}$ feet high, compressed air machines mining the coal. J. F. Johnson, Bellaire, O., is superintendent and Henry Johnson, Dillies Bottom, O., mine boss. Three inspections made, two fatal accidents occurring at this mine during the year. Condition only fair, as there are still a lot of old working with which to contend from that portion of the mine which was operated twenty years ago. Part of the mine has very poor roof, which requires a great deal of timbering to keep it in good order. Roads were in poor condition, but directions were given to remedy this. Fan ventilation, rope haulage, and 73 miners and 12 day men employed.

PULTNEY.

Situated below Bellaire, O., on the C. & P. R.R., and is a slope opening, 150 feet in depth, into the No. 8 seam, $5\frac{1}{2}$ feet high at this point, and operated by the Pultney Coal Co., Bellaire, O. Jacob Long, Bellaire, O., is superintendent and Geo. McMillan same place is mine boss. Inspected five times during the year, and found in good order. This is another mine in my district which has never had a fatal accident, and the management is to be congratulated on their excellent work in their handling of several bad squeezes. Electric haulage and machinery with rope haulage used in the slope. Fan ventilation, and 135 miners and 27 day men are employed.

EMPIRE No. 1.

Situated near Bellaire, O., on the C. & P. R. R., and owned by the Empire Coal Mining Co., Pittsburg, Pa. J. A. Trimbath, Bellaire, O., is superintendent and Wm. Gully of the same place is mine boss. Nine inspections were made, the mine being in poor condition throughout the year. On my first visit the ventilation was on the limit, at which time advice was given to employ no more men until the ventilation was improved. When next inspected an airshaft was in the course of construction; a traveling way had also been started, which was inspected and found that some timbering would be required, and also some cleaning up was necessary, but men were employed at this work at the time of this inspection. The ventilation was still on the limit, but information was forthcoming that no more men would be employed until the new slope was connected with the main entry. On December 27 it had not been completed, although work was progressing at both openings, and from all appearances would be completed within a short time. Four fatal accidents occurred, three from falls of stone and one from being run over by a motor. This mine has been ventilated from the No. 2 mine, and when the airshaft is sunk and the slope connected a new fan will be erected, which will supply an abundance of ventilation. Slope opening, 200 feet in length to the No. 8 seam of coal, which is 5 feet high at this point; 100 miners and 30 day men are employed. Mining machines and electric haulage are in use for mining and hauling the coal.

EMPIRE No. 2.

Situated about one mile below the No. 1 mine, and managed by the same company. Hiram Cooley, Bellaire, O., is mine boss. Slope opening 150 feet long. Inspected six times during the year. Two fatal accidents were recorded from this mine for the year, the mine having been in fair condition. These accidents were due to falls of stone. Fan ventilation, electric and rope haulage. 140 miners and 30 day men find employment.

EMPIRE No. 6.

Located on the B. & O. R. R., about four miles west of Bellaire and operated by the same parties as the No. 1 and No. 2 mines. Frank Manks, Steel, O., is mine boss. Drift opening, to the No. 8 seam, which is five feet high. Three visits were made. On first visit mine was in fair order, with the exception of some breakthroughs in some machine rooms being beyond the air limit. They were cautioned in regard to this matter and promised to attend to it at once. Scales were tested and found correct. A Capell fan is in use here, the only one in the State and the ventilation is fine. Electric haulage in use and 80 miners and 34 day men are employed.

GAYLORD.

Is situated on the C. & P. R. R., about four miles above Martins Ferry, O., and is owned and operated by C. & P. Coal Co., Cleveland, O. Thos. Sauters, Martins Ferry, O., is superintendent, and Gardener Hysell, of the same place is mine boss. Drift opening, to the No. 8 seam of coal $5\frac{1}{2}$ feet in thickness. Three visits were made, one to investigate the cause of a fatal accident caused by a fall of stone. The ventilation is ample, but with very little surplus, the furnace being scarcely large enough to furnish a large amount of ventilation, and as yet no suitable location has been found for a fan, but hope to be able in a short time to install one. Mine is both machine and pick, and has a very bad roof, which requires constant watching and care to keep it in order. Furnace ventilation, electric haulage, and 150 miners and 28 day men employed.

CAPTINA.

Situated on the C. & P. R. R., about four miles above Martins Ferry, O., and owned and operated by the Captina Coal Co., Armstrongs Mills, Ohio. Wm. Rankin, is superintendent and mine boss, of Armstrongs Mills, Ohio. Visited twice and mine in fair order. On the first visit the air course was choked with a fall, and requested that it be given attention at once. This was accomplished by driving around it as soon as possible, and on my second visit it was not quite completed. Some improvements had been made to the fan. This is a queer old shaft 25 years old, and generates gas but has never been visited by an explosion, and but one fatal accident has occurred in 20 years. Fan ventilation, and mule haulage are used. Shaft opening 65 feet in depth at which 29 miners and 5 day men are employed.

NAIL MILL.

Is located at Bellaire, O., and is operated by the Carnegie Steel Co., Bellaire, O. Joe Donnelly, is superintendent and mine boss. Drift opening, to the No. 8 seam, which is about five feet high. Three inspections made. This is a machine mine and on my first visit there were 47 miners and 14 day men, but the force toward the end of the year was greatly reduced, and but little work since last report. Fan ventilation, electric haulage, 18 miners and 6 day men being employed.

AETNA STANDARD.

Situated at Etnaville, O., and supplies coal for the mill owned by the American Sheet Steel Co. Roger Ashton, Martins Ferry, O., is superintendent and mine boss. Drift opening, into the No. 8 seam of coal, which is about five feet high. Furnace ventilation employing 50 miners and 8 day men. Four visits made. Pick mine with mule haulage.

TIN PLATE.

Situated at Martins Ferry, O., and is owned by the American Tin Plate Co., New York. C. A. Robins, Wheeling, W. Va., is superintendent and Lee Woods, Martins Ferry, O., is mine boss. Drift opening, to the Uo. 8 seam of coal, $5\frac{1}{2}$ feet high. Five inspections were made and conditions fair, some brattices being ordered to be replaced by brick ones. Fan ventilation, electric haulage employing 41 miners and 14 day men.

LAUGHLIN.

Located at Martins Ferry, O., and is owned and operated by the Whittaker, Glessner Steel Co., Martins Ferry, Ohio. Wm. Glessner, is superintendent, and Chas. Woods, Martins Ferry, Ohio, is mine boss. Drift opening, into the No. 8 seam, coal $5\frac{1}{2}$ feet high. Inspected four times and mine in fair order with the ventilation exceptionally good. Fan is the ventilating medium, and mules are used for hauling the coal. 22 miners and 6 day men find employment.

PROVIDENT.

Situated near St. Clairsville, O., on the Wabash R. R., and is owned and operated by the Provident Coal Co., Cleveland, Ohio. Shaft opening to the No. 8 seam, coal five feet high. The shaft is 85 feet in depth. Air shaft has been sunk and connection made with the main shaft. Mine will be equipped with all modern conveniences for handling coal in the near future. David Thomas, St. Clairsville, O., is superintendent and has full charge of the development. 20 men are employed.

HARRISON COUNTY.

CLOVER LEAF.

Located on the P. C. C. & St. L. R. R., near Bowerstown, O., and is owned and operated by the Cuyahoga Coal Co., Cleveland, Ohio. Drift opening to the No. 6 seam of coal, three feet high. Wm. Nixon, Bowerstown, O., was superintendent a portion of the year and also serves in the capacity of mine boss. Three visits were made. On first visit some advice was given in regard to size and location of fan. On last visit fan was in operation and giving good satisfaction, but the mine was idle, being suspended for some time and without very bright prospects of resuming at present. Forty miners and 9 day men employed. Mules are used in hauling the coal.

MATTERN.

Is a small mine located near Cadiz, O., and is a drift opening to the No. 6 seam of coal and owned by John Mattern. Visited November 30, 1904, to inquire into the cause of death of John Young, a miner 71 years old, who was found dead about one hundred feet from daylight; investigation proved that he had died from heart failure, a verdict having been rendered in accordance with the facts. Two men are employed.

EWING.

Situated on the W. & L. E. R. R., near Ginther, O., and is owned by the Pittsburg Block Coal Co., Pittsburg, Pa. A. E. Rippert, is superintendent, and H. S. Rippert, is mine boss, both of Ginther, O. Drift opening to the No. 8 seam of coal, which is about five feet in thickness. Two visits were made, one due to a fatal accident caused by a fall of stone. Mine has been equipped with a new 16 foot fan and electric machinery since last report. Electric haulage is installed and 134 miners and 24 day men are employed.

ADENA.

New mine located on the W. & L. E. Railroad, about one mile north of Adena, O., and is owned and operated by the Adena Mining Co., Adena, Ohio. George Deike, is superintendent, and Noble Eastham, mine boss, both of Adena, O. Drift opening, into the No. 8 seam of coal being five feet high. This mine was opened up in May and have their electric fan in operation. This mine is located in a large acreage of coal and in a year or two will be one of our large mines. Forty-four miners and 12 day men employed.

ROBY No. 1.

Located on the W. & L. E. R. R., at Robyville, O., and is owned and operated by the Roby Coal Co., Cleveland, O. Wm. Moke, is superintendent, and Wm. Neath, mine boss both of Robyville, O. Drift opening, to to No. 8 seam of coal, five feet high. Two visits were made and on the first occasion scales were tested. This mine has a very bad roof, and employs 10 men timbering, and even then they have been unable to keep it up, it being necessary to remove the mining machines and use only picks on this account. Breakthroughs in rooms are not made as regularly as they should be, and they were ordered to make them in compliance with the law in the future. Fan ventilation is in use and electric haulage; 215 miners and 34 day men employed.

ROBY No. 2.

Located near the No. 1 mine and managed by the same people, with Wm. Fitzgerald, Robyville, mine boss. Inspected four times during the year, two visits being due to fatal accidents, one man being run over by a motor and the other crushed between the car and post. Mine was in fair condition, and has a much better roof than that in the No. 1 mine. The machines, however, have also been taken out of this mine. A fan is used as a ventilating medium. Electric haulage is in use, and 100 miners and 16 day men are employed.

TIPPECANOE.

Located on the C. L. & W. R. R., near Tippecanoe, O., and is owned and operated by Oglevee & Scott Coal Co., Flushing, O. Geo. Selway, Tippecanoe, O., is superintendent and mine boss. Drift opening, to the No. 7 seam of coal, which is from 3 to 8 feet high. This is a pick mine, with furnace ventilation and electric haulage. Four visits were made and the mine found in fair order, but the mine has only worked about half time; 22 miners and 10 day men employed.

FREEPORT.

New mine located on the same road as the Tippecanoe mine near Freeport, O., and is owned and operated by the Freeport Coal Co., Freeport, O. Wm. Nixon, Freeport, O., is superintendent and mine boss. Slope mine 200 feet long into the No. 7 seam of coal. An air shaft has been completed, but little coal as yet has been reached, but am of the opinion that they have a fine field. Natural ventilation, employing 5 miners and 4 day men.

JEFFERSON COUNTY.

WALNUT HILL No. 1.

Is located on the C. & P. R. R. at Yorkville, Ohio, and is owned by the O. & P. Coal Co., Cleveland Ohio. John Nixon is superintendent, and David Brown, mine boss, both of Yorkville. Drift opening to the No. 8 seam of coal, five feet high, with fan ventilation. Machines are used in mining the coal, electric haulage being installed. Four visits were made and on the first, mine was in poor order, the mine having been idle on account of a local strike; ventilation was on the limit and the drainage was poor. Orders were given to remedy these conditions and on my next visit the mine was improved, but some timbering was ordered. One fatal accident occurred at this mine during the year

caused by a fall of stone. One hundred and eighty-five miners and 34 day men are employed.

WALNUT HILL No. 2.

Lies adjacent to the No. 1 mine and managed by the same parties. This is a new mine and employs about six men. At the close of the year an electric fan was being erected which will ventilate this mine and a portion of the No. 1.

RUSSELL.

Located on the C. & P. R. R. at Tiltonville, Ohio, and is owned by the Russell Coal Co., Steubenville, Ohio. The superintendent is Geo. McKitterick, Steubenville, Ohio, and Seth Williams is mine boss, Tiltonville, Ohio. Drift opening to the No. 8 seam, the coal being five feet high. Six visits were made and on the first one the air was on the limit. This was afterwards remedied by changing the air. Mine was in fair order. Tested the scales and found them correct. One fatal accident occurred during the year. Furnace ventilation, and mule haulage are in use. Eighty-four miners and 17 day men find employment.

KELLEY No. 2.

Located on the C. & P. R. R., near Warrenton, Ohio, and is owned by the Lewis Coal Co., Warrenton, Ohio. Warren Trimbath, Warrenton, Ohio, is superintendent and mine boss. Drift opening, to the No. 8 seam of coal which is five feet high. Inspected four times, but conditions have been unsatisfactory throughout the year, the ventilation being very poor. Regret to say that no effort was made to do what could be done to remedy this state of affairs even after repeated orders had been given. Suggested a new fan which may improve matters. One fatal accident occurred caused by an electric wire. Fan ventilation, electric haulage, 60 miners and 16 day men employed.

RUSH RUN.

Situated on the C. & P. R. R. at Rush Run, Ohio, and is owned by the Glens Run Coal Co., Cleveland, Ohio. Perry Maurer is superintendent, and John Coss is mine boss, both of Rush Run, Ohio. Opening to the No. 8 seam, five feet high at this point, furnace ventilation and electric haulage. Six visits made during the year and the mine found in fair condition. One fatal accident occurred which was caused by two cars being run down the incline without the rope. The safety catch threw the last car but the momentum was so great owing to the steep incline that the front car dragged the other sideways and entirely wrecked the tippie, leaving not a splinter of wood above the rails. The man killed was sitting on the tippie and was thrown forty feet into a field. The check weighman was also seriously injured. We would sug-

gest that where tipples have inclines, it would be better if the weigh sheets and the miners' checks were placed on the outside, so that it would not be necessary for the miners to go inside the tipple. As a necessity some person must be employed there, but it would tend to greatly lessen the risks of such accidents as this one. Seventy-five miners and 21 day men employed. The coal is mined by machines, and has electric haulage.

RUSH RUN No. 2.

Is a new mine located about three miles from No. 1 and about the same distance from the C. & P. R. R., and is owned by the same company, with A. J. Hathaway as mine boss. The main entry was driven about 500 feet when visited. It is the intention to install electric machinery in the near future. About 4 men are employed. This mine is ventilated by means of a fire basket.

RUSH RUN No. 3.

New mine located near the No. 2 and the coal will be dumped over the same tipple. Both mines will use electric machines. About ten men are employed, the mine being ventilated by a fire basket.

EDGAR No. 1.

Is located on the W. & L. E. R. R. near Glens Run, Ohio, and is owned by the Glens Run Coal Co., Cleveland, Ohio. Thomas Thomas, is superintendent, and Robert Nicholson, mine boss, both of Dillonvale, Ohio. Drift opening into the No. 8 seam of coal five feet high, with fan ventilation and electric haulage. The coal is mined by electric machines. Three inspections made during the year, conditions being fair and the ventilation good. One fatal accident occurred, caused by a fall of stone. Chief Inspector Harrison was present at the investigation, and it was found that it was due to great carelessness on the part of the victim, although the management had not been as careful as they might have been. Two hundred miners and 20 day hands employed.

EDGAR No. 2.

Located near the No. 1 mine owned, operated and managed by the same parties as the No. 1, the coal being dumped over the same tipple. Same number of visits made, and mine found in fair condition. Fan ventilation, and electric haulage. Two hundred miners and 20 day men employed. One fatal accident occurred, caused by a fall of stone.

DOROTHY.

Situated near Warrentown, O., on the W. & L. E. R. R., and owned by Williams Coal Co., Portland, Ohio. Mr. Anderson of Martins Ferry, O., is superintendent, and Joe Robinson, Portland Sta., O., is mine boss. Four inspections made, the mine having worked but little during the year. Drift opening, No. 8 seam, coal five feet in thickness. A furnace has been erected and an air shaft sunk since last report. Thirty miners and 9 day men employed. Mules are used in hauling the coal.

PORTLAND.

Situated on the W. & L. E. R. R., near Portland, C., and is owned by Portland Coal Co., Wheeling, W. Va. Sam Kinsey, Wheeling, W. Va., is superintendent, and Wm. Kinsey, Portland Station, Ohio, mine boss. Drift opening to the No. 8 seam, coal five feet high, furnace ventilation and mule haulage. Three visits made and conditions fair, work being poor. Sixty-five miners and 18 day men employed.

CONNER NO. 1.

Located on the W. & L. E. R. R., at Connersville, Ohio, and operated by the W. & L. E. Coal Co., Cleveland, Ohio. Superintendent Fred Hornickel, Dillonville, Ohio; assistant manager, Fred Aspenwall, Connersville, Ohio; mine boss is Peter Seltzner. Drift opening, No. 8 seam, five feet high, fan ventilation, and electric haulage. Mining machines are used for cutting the coal. Two visits were made, one being due to a fatal accident. Mine has worked very poorly. On first inspection the ventilation was on the limit, but a new opening has been made which will improve matters. One hundred and forty miners and 20 day men employed.

CONNER NO. 2.

Situated near the No. 1 and managed by the same parties, with Wm. Aspenwall, as mine boss. Same number of inspections made, and conditions about the same. A new opening has also been made here. One hundred and forty miners and 20 day men are employed.

DILLON No. 2.

Situated on the W. & L. E. R. R., at Dillonvale, Ohio, and is owned and operated by the same company as the Conner mines, with the same superintendent in charge and E. F. Wait, Dillonvale, Ohio as mine boss. Drift opening, No. 8 seam, coal five feet high. Four visits were made one on account of a fatal accident due to a fall of stone. On July 25, visited the mine in company with Chief Inspector Harrison, and found great carelessness in regard to making breakthroughs in rooms at the

lawful distance. Strict orders were given to attend to this matter at once, and when next inspected conditions were materially improved. This mine has been made all machine work which reduces the force from 400 to about 250 men. Ventilation was on the limit as the excavation is so very large, that one fan cannot properly ventilate the mine, and it will be necessary to install another soon. This is one of the largest mines in this district. Two hundred and fifty miners and 45 day men employed. Electric motors haul the coal.

LONG RUN.

Owned and operated by the same parties as the Dillon No. 2 mine, with Wm. Nichols, Startle, Ohio, as mine boss. Same opening, same seam of coal and same height. Mine was suspended for eight months and resumed work on December 27, 1904. Three visits were made and conditions fair, a new opening having been made which improves the ventilation. Machines mine the coal. Two fatal accidents occurred, both caused by falls of stone. Electric motors haul the coal. Seventy-five miners and 30 day men are employed.

ROBY No. 3.

Located at Ramsey, Ohio, on the W. & L. E. E. R. R., and is owned and managed by the Roby Coal Co., Cleveland, Ohio. Wm. Moke, Robyville, Ohio, is superintendent and Geo. Chamberlain, Ramsey, Ohio, is assistant. Evan Evans, Ramsey, Ohio, is mine boss. Drift opening, No. 8 seam, coal five feet high, fan ventilation, and electric haulage. Two inspections were made and the mine found in good order. Machines are used in cutting the coal. Eighty-five miners and 20 day men employed.

ROBY No. 4.

Located near the No. 3 mine, and managed by the same company. Wm. Waldron is mine boss, same tittle, same number of visits, and same conditions. Fan ventilation, and machines are used to cut the coal. One hundred and fifty-five miners and 18 day men are employed.

ROBY No. 5.

Located near the No. 3 mine, and connected with the same by a face entry, managed by same parties, the coal being dumped over the same tittle, same number of visits made, and conditions fair. These mines produce the largest amount of coal of any in my district. Furnace ventilation, machine mine, electric haulage, employing 100 miners and 21 day men.

DUNGLEN.

Situated near Mt. Pleasant, on the W. & L. E. R. R., and is owned and operated by Morris & Posten Coal Co., Dunglen, Ohio. L. D. Posten is superintendent, and E. W. Dowler mine boss, both of Dunglen. Drift opening, No. 8 seam of coal five feet high. Fan ventilation, and electric haulage. Five inspections made and the mine in fair condition. They have made many improvements, and installed a new fan. Made a new haulway inside and out and have a thoroughly up to date mine, the management having spent a large sum of money to accomplish these results. One fatal accident occurred. Machines mine the coal. Two hundred and twenty-five miners and 35 day men are employed.

O'NEAL.

Located between Adena and Long Run, on the W. & L. E. R. R., and is owned by the O'Neal Coal Co., Adena, O. J. S. O'Neal is superintendent and Jno. Daily mine boss, both of Adena, O. Drift opening, No. 8 seam of coal, about 5 feet high, mule haulage, fan ventilation. Four inspections made, one on account of a fatal accident. Conditions fair; 75 miners and 14 day men employed. Machines are used in mining the coal.

McFAYDEN.

Situated at Carmen, on the P., C., C. & St. L. R. R., and is owned by the Wayne Coal Co., Carmen, O. D. G. Wise superintendent and Andy Arott mine boss, both of Carmen, O. Drift opening, into the No. 8 seam of coal, which is about 4 feet high. Fan ventilation, rope haulage, and is exclusively a pick mine. Two visits were made, and on last visit mine was in better condition than ever before and conditions very satisfactory, but the mine was working with a reduced force of men. The coal is used for supplying engines on the railroad; 44 miners and 16 day men employed.

(MINES VISITED IN JEFFERSON COUNTY, BUT IN MR. DAVIS' DISTRICT.)

JEFFERSON NO. 1.

Located at Piney Fork, O., on the C. W. & A. R. R., and is owned by the Jefferson Coal Co., Cleveland, O. Jno. Simpson is superintendent and R. Wilson, both of Piney Fork, O., is mine boss. On October 25 investigated fatal accident of a miner who was killed by a fall of soapstone. Mr. Davis was absent on his vacation.

PUM RUN.

Located on the C. & P. R. R., and is owned by the United States Coal Co., Cleveland, O. H. A. Bowyer is superintendent and Wm. Gibson

mine boss, both of Smithfield, O. Investigated a fatal accident caused by great carelessness in the handling of powder, which resulted in the death of the victim. Mr. Davis was absent from the district at the time.

AMSTERDAM.

Located at Amsterdam, O., and is owned by the Amsterdam Coal Co., Cleveland, O. E. W. Beidler is superintendent and D. Reese mine boss, both of Amsterdam, O. On December 1 was called to this mine in company with the Chief Inspector, George Harrison, and Mr. Davis to assist in extinguishing a fire, which was burning fiercely in one of the entries. The Chief assumed charge at once, and, after several vexatious delays in getting the material necessary to accomplish the work, the fire was gotten under control. Had the required material been on hand, this result would have been accomplished sooner.

COLUMBIANA COUNTY.

SLOPE MINE.

Visited on June 3, in company with Inspectors Miller and Davis, to advise with the management as to the best methods to check a bad squeeze on the main entry. After several days work they were enabled to check it.

FIFTH DISTRICT.

W. H. TURNER.

GUERNSEY, COSHOCTON AND TUSCARAWAS.

HON. GEORGE HARRISON, *Chief Inspector of Mines, Columbus, O.*

ESTEEMED SIR:— I herewith submit my fifth annual report, covering a period extending from November 15, 1903, to January 1, 1905. The activity in new development and the re-equipping of old ones for a greater daily production have greatly surpassed the growing demand for fuel. In consequence the miners of this district, with few exceptions, operated about three-fourths time.

Four new mines were opened up during the year, viz., Midway and Nicholson, in Guernsey county, and Wainwright No. 6 and Central Valley in Tuscarawas county. The three first named are being equipped with modern electrical machinery, the latter with compressed air power and punching mining machines, which have proven to be the most successful in mining the No. 6 seam of coal when surrounded by all the peculiarities associated with said coal seam. In the No. 7 seam of coal, where sulphur balls are unknown, the electrical chain machines surpasses all others for speed and ease while mining, and it is the only machine now operating in this seam of coal.

With but few exceptions, the wage scale has been maintained throughout the district, and with but little strife, a few strikes occurring during the year. The miners of the Cassingham mine and Arnold mines struck on April 30 to maintain a differential that had been voluntarily granted by the operators on machine mining when first introducing the machines. On August 18 a compromise was reached, and operations resumed. On May 13 the miners of the Morgan Run No. 3 and Wade mines struck to enforce a demand to secure Hopper scales, in place of the railroad scales, to be used in weighing their coal; operations resumed December 1 pending arbitration of the question involved. The miners of Indian Camp mine were locked out May 12 by a refusal on the part of the company to sign the scale. On September 1, scale conditions being complied with, operations resumed.

Fifty-two (52) improvements were made in this district during the year. Two explosions of gas occurred; fortunately no deaths resulted from same. In the Noble mine, Jas. Orr superintendent and his mine foreman, L. L. Beech, entered the mine with open lights, when an explosion followed, seriously burning Mr. Orr, who was in the rear, the mine foreman escaping with but slight injury. The workmen had vacated the entry about one hour before the explosion, the gas had unexpectedly accumulated during their absence. Under such conditions, in a gaseous mine, a safety lamp should always precede the open light. At the Cleveland No. 1 mine, Senecaville, Guernsey County, O., a room fifty-four (54) feet caved in during the night; the fire boss on the following morning discovered an accumulation of gas in the cavity made by the fall. He warned all persons to remain away from the room until it could be properly cared for. Wm. Christopher, a miner, who worked on the opposite parallel

entry, came through the cross-over door, regardless of the warnings of his fellow-miners, exercising more ignorance than obedience or judgment, proceeded into the room with an open light and ignited the gas, severely burning himself and three other miners, and also the mine foreman, who was approaching the place to care for the danger. A door and several brattices were reduced to splinters by the force of the explosion. The greatest mystery was that greater damage to humanity was averted from the result of this foolhardy act.

Some local creeps occurred during the year, caused in every instance by excessive soft bottom, and occurred in each case on butt entries nearing their limit, leaving no serious results to the mine or the company's interests.

The coal territory in this district is principally all under option, and gradually being developed. There are probably coal fields isolated from railroads yet untested by the drill.

If it can be conveniently arranged for miners to blast at quitting time, the sanitary conditions of the mines would be greatly improved. In my judgment, the first break-through on one side of rooms should be made thirty (30) feet from the entry; on the other side, sixty (60) feet from the entry, and then made every sixty (60) feet thereafter on both ribs, keeping a break-through within thirty feet of the room face at all times, would be an improvement over the present system of room ventilation. Break-throughs in parallel entries should be accurately measured on both sides of the pillar, and driven through full width, instead of stepping off the distance in both entries and driving to meet in a zig-zag manner, leaving the area about half what it should be to permit a free circulation of air.

Coal varying in thickness in different sections of mines necessitates the length of posts arranged accordingly; frequently it is found that short posts are supplied in the high coal room, and the long posts in the thin coal rooms. Great care should be exercised in providing each miner with post and cap suitable for the thickness of the coal he is working and enforce an established system of posting suitable for the nature of the top regardless of the solid appearance of same occasionally.

My opinion on solid shooting remains the same as expressed in my previous report. It should be either mined by machinery or otherwise shot firers should be provided to do the blasting.

The condition of the miner will compare favorably with other classes of labor so long as he is regularly employed. Through the vigilance and efficiency of the officials of the Miners' Organization, local grievances are generally adjusted without the loss of time.

Much to be regretted, thirty-two (32) fatal accidents occurred in and around the mines of this district during the time specified in this report. It is desired that every precaution will be enforced by all concerned to prevent accident and reduce the number of fatalities during the ensuing year.

My official relations with your predecessor, Hon. E. G. Biddison, and with the operators and miners have been pleasant. Extending to you many thanks for the many official visits to various mines and the valuable assistance rendered, I am,

Very respectfully,

W. H. TURNER, Cambridge, O.,

Inspector Fifth District.

BELMONT COUNTY.

COCHRAN No. 1.

Located near Barnesville, O., transportation B. & O. R. R., and operated by the W. A. Werner Coal Co., Zanesville, O. W. A. Werner, Zanesville, O., is superintendent and Thos. Davey, Baileys Mills, O., is mine foreman. Drift mine, penetrating the No. 8 seam of coal, which is about 4 feet thick, ventilated by a furnace; 34 miners and 11 day men employed. Four inspections made during the year. On November 21 ventilation was found deficient, owing to impaired brattices. Requested that the necessary repairs be made. December 30 mine was found in an improved condition.

COCHRAN No. 2.

Situated near the No. 1 mine, the coal being dumped from the same tippie and under the same management. Arthur Ogg, Barnesville, O., is mine boss. Drift opening, penetrating the No. 8 seam, which is about 4 feet thick, ventilated by a furnace, and employs 18 miners and 13 day men. Four visits were made. On November 21 ventilation was deficient, owing to impaired stoppings and doors. Requested that all the necessary repairs be made, and safety holes provided along the main motor road. December 30 mine was found in an improved condition. Electric power was installed in this mine during the year, and is proving a success.

MEDIA.

Mine located near Barnesville, O., which is a coaling station for locomotives on the B. & O. R. R., and operated by the Media Coal Co., Fairmont, W. Va. Wm. Reid, Barnesville, O., is superintendent and mine boss. Drift opening, to the No. 8 seam, which is 4 feet in thickness, ventilated by a furnace. Seven (7) miners and 3 day men employed. Visited four times during the year. A strike occurred on May 23, resulting in the mine suspending operation. December 30 information was given me that the railroad company would lay a switch in the near future, and the production would be transported on the B. & O. R. R. The chutes have been torn down, and the coaling station abandoned.

COSHOCTON COUNTY.

CASSINGHAM No. 2.

Located near Coshocton, O., on the W. & L. E. R. R., and operated by the *Coshocton Coal Co.*, Cleveland, O. R. M. Mason, Coshocton,

O., is superintendent, and Oliver Channell, mine boss, residing at the same place. Drift to the No. 6 seam of coal, which is from $3\frac{1}{2}$ to 4 feet thick, ventilated by a furnace and employing 29 miners and 23 day men. Seven visits were made. A strike occurred on April 30 and compromised on August 18. An airshaft was sunk during the summer. On December 7, the ventilation was found in good condition. Electric machines and motors are in use.

CASSINGHAM No. 3.

Located near Coshocton, and under the same management as the No. 2 mine, same superintendent with W. M. Powers, Coshocton, O., as mine boss. Drift opening, No. 6 seam, $3\frac{1}{2}$ to 4 feet thick, and has furnace ventilation; 15 miners and 4 day hands employed. Visited five times during the year. A strike was inaugurated at this mine on April 30 and continued until August 18. On September 28 my last visit to this mine it was in good condition, but had not its full complement of men to operate it to its full capacity. Electric machines are used in mining the coal, and motor haulage is installed.

DRAKE No. 2.

Situated at Coshocton, O., and the output is consumed by domestic trade, operated by Thos. Williams & Son, Coshocton, O. George Doney, Coshocton, O., is mine foreman, and John Williams, Coshocton, Ohio, is superintendent. Drift opening, No. 6 seam of coal, $3\frac{1}{2}$ to 4 feet thick, furnace ventilation and employs 60 miners and 23 day men. Inspected twice during the year. February 16, requested an air shaft sunk, the return to the old shaft being obstructed by falls and water, deterring the air traveling. September 29 shaft was completed and the ventilation in good condition.

ODEN VALLEY.

Located near Conesville, O., on the P. C. C. & St. L. R. R., and operated by Oden Valley Coal Co., Coshocton, O. J. W. Cassingham is superintendent and J. Ford, Conesville, O., is mine foreman. Drift opening, No. 6 seam, coal being $3\frac{1}{2}$ to 4 feet thick; 55 miners and 9 day men employed. Inspected twice. On April 7, requested an escape-way made at the earliest convenience. August 17, it was not completed having 90 feet yet to drive before reaching the surface. This is a new mine opened up during the year. Ventilation was exceptionally good on both inspections.

MORGAN RUN No. 3.

Situated near Coshocton, O., on the W. & L. E. R. R., and operated by the Morgan Run Coal Co., Cleveland, O. L. B. Piper, Coshocton, O., is superintendent, and Robert McCormick, Coshocton, O., is mine boss. Drift opening, to the No. 6 seam of coal, which is about

four feet thick. Furnace is the ventilating medium: 40 miners and 21 day men employed. Inspected on February 18 and found in good condition. On May 13 a strike to secure hopper scales in place of railroad scales closed the mine which resumed operation on December 1, pending arbitration of the question in dispute. December 6 the mine was in good condition so far as it was in operation, and the entire mine was being repaired as fast as possible.

WADE NO. 3.

Located near Coshocton, O., on the W. & L. E. R. R., and operated by the Wade Coal Co., Cleveland, O. Jas. Perkins, Coshocton, O., is superintendent and mine boss. Drift opening, to the No. 6 seam of coal, which is from $3\frac{1}{2}$ to 4 feet in thickness. Ventilated by a furnace and employs 53 miners and 36 day hands. February 18 the mine was in compliance with the law. A strike to secure hopper scales was inaugurated May 13, work resuming December 1, after submitting the question to arbitration. On December 6 mine was in good condition as far as operation had resumed. It is hoped to have a full complement of men employed by January 1.

CONESVILLE NO. 4.

Situated near Conesville, O., on the P. C. C. & St. L. R. R., and operated by David Davis, Conesville, O., who is superintendent, and J. F. Murphy, Conesville, O., is mine foreman. Drift opening, to the No. 6 seam, which is from $3\frac{1}{2}$ to 4 feet thick, and employs 58 miners and 14 day men. Two inspections made during the year. April 7 the cable haulage was completed, the coal being pulled to the top of the hill on the over land route, and drifted down to the tippie; the long winding dilly road that had become dangerous is now abandoned. August 17 an air compressor and punching machines were installed. A twelve foot Brazil fan was being placed in position, in order to allow shooting after the machines at any time desired.

CONESVILLE NO. 2.

Located near Conesville, and operated by the same company as the No. 1. Same opening, same seam of coal, being four feet in thickness at this point; 18 miners and 2 day men are employed. Two visits were made. The ventilation was sufficient for the small force employed during both inspections. This was opened to work out five acres of coal that was left to protect the spring of water that supplied the dilley boilers with water while it was in operation, and to supply the railroad chutes with coal while mine No. 4 was being newly equipped, consequently the life of this mine will be brief.

ARNOLD No. 1.

Situated near Conesville, O., on the W. & L. E. R. R., and operated by the Arnold Coal Co., Columbus, Ohio. Henry Johnson, Coshocton, O., is superintendent, and mine foreman. Drift, No. 6 seam, coal $3\frac{1}{2}$ to 4 feet thick, fan ventilation and employs 42 miners and 20 day men. Inspected twice during the year. April 7 with minor improvements added, the ventilation will be acceptable. A strike to retain a differential on machine mining scale was inaugurated April 30, and resumed operation under settlement August 18. September 20 the mine was idle, a force of men were removing an obstruction from the main air course where the roof had fallen in; the third and fourth east entries had crept during the strike, the rooms had been cut through and the entries were started again. Requested some timbers raised that had settled in the mine entrance and endangering the motorman while passing back and forth.

BEST.

Located near Conesville, O., and operated by the Best Coal Co., Coshocton, O. Christopher Hudson, Coshocton, O., is superintendent and mine boss. Drift opening, No. 6 seam of coal, which is from 4 to 5 feet in thickness and employs 65 miners and 13 day men. June 28 ventilation was in good condition, and the entry was being driven out in a swail in view of securing a better haulway. September 28 the new opening was completed and the incline was being changed to line with the new opening. This will prove a valuable improvement to both the hauling and ventilation.

LOCUST GROVE.

Located near Conesville, O., on the W. & L. E. R. R., and operated by John Williams, who is sole manager. New opening piercing the No. 6 seam of coal, which is four feet thick. Visited September 27. Two men are employed driving the main entrance. Developments were progressing substantially.

GUERNSEY COUNTY.

OLD ORCHARD.

Located at Danford, O., on the B. & O. R. R., and operated by the Morris Coal Co., Cleveland, Ohio. Wm. Langden, Cambridge, O., is superintendent, and Alvey Alderman, of the same place is mine boss. Shaft 48 feet in depth to the No. 7 seam of coal, which is six feet thick. Fan is the ventilating medium, and 152 miners and 60 day men are employed. Five inspections were made during the year. On November 20 called attention to a violation of the law governing breakthroughs.

July 26, requested some timbering done at the main entry abandoned passway and a trapper was placed at trap door between 17th and 18th east entries. This mine is equipped with electric power which mines and hauls the coal from the gatherers. Ventilated by means of a fifteen foot Brazil fan. Care in keeping brattices tight and airways open is all that is required to assure lawful ventilation.

FORSYTHE.

Situated at Danford, Ohio, on the B. & O. R. R., and operated by the Forsythe Coal Co., Cambridge, O. Homer Forsythe, of the same place is superintendent and Wm. Sheehan, is mine boss. Slope 110 feet deep, penetrating the No. 7 seam of coal, which is from 5½ to 6 feet thick. Ventilated by means of a fan. One hundred and fifty-seven (157) miners and 60 day men are employed. Inspected four times during the year. July 27 the ventilation was found deficient owing to impaired stoppings. Wm. Sheehan, who had just taken charge as mine foreman fully realized the situation. Requested a general repairing of brattices from the fan to working faces. December 12 the mine was in excellent condition. A Jeffrey Car hauling endless chain with a capacity to hoist 1600 tons of coal daily was placed in this slope during the year, and is giving general satisfaction, previous capacity being 900 tons daily. This improvement ranks with the important improvements of this District for the year.

CISCO.

Located at Pleasant City, O., on the Pennsylvania R. R., and operated by the Opperman Coal Co., Cambridge, O. Thos. Richards, Pleasant City, O., is superintendent and Samuel Colters, of the same place is mine boss. Shaft 80 feet in depth to the No. 7 seam of coal which is from 5½ to 6 feet thick and ventilated by means of a fan. Seventy (70) miners and 27 day men employed. Two inspections made. December 4 conditions were as good as could be expected in a mine nearing exhaustion. March 10 worked out and abandoned. Requested the necessary filing of a complete map with the Department.

IDEAL.

Situated at Byesville, O., on the Penna. R. R., and operated by the Wills Creek Coal Co., Detroit, Michigan. W. H. Davis, Byesville, is superintendent and George Shaw, of the same place is mine boss. Shaft opening, 75 feet deep to the No. 7 seam of coal, which is 5 feet 4 inches thick. A high speed fan is in use as a ventilating medium. Nine visits made. One to investigate fatal accident, and five to test scales, with the exception of one test, when the tippie had been changed, they were found accurate. Three inspections were made of the mine.

On June 16 requested that the distance between breakthroughs be made more accurately. The other inspection resulted satisfactorily.

INDIAN CAMP.

Located near Birds Run, O., on the Pennsylvania R. R., and operated by the Indian Camp Coal Co., Mt. Gilead, O. J. W. Shaw, Birds Run, O., is superintendent, and J. B. Lawrence, same place mine foreman. Drift, No. 6 coal, 5 feet in thickness, and employs 47 miners and 8 day men. Five inspections made. March 23, owing to excessive soft bottom a creep started on the 2nd and 3rd east entries. Advised that double cribs be erected in the entrance of those entries to protect the main entry from threatened creep, and larger pillars left in the future workings. The company refusing to sign the scale precipitated a strike May 12, which continued to the first of September when a settlement was reached; during the idleness of the mine the creep crossed to the 4th east entry and lodged leaving the main entry free from damage. A new furnace was built during the time the mine was idle. September 30 the ventilation was excellent. J. W. Shaw, had resigned as superintendent and J. B. Lawrence, has assumed full control.

NICHOLSON No. 1.

Located near Cambridge, Ohio, on the Penna. R. R. and operated by the Ohio Coal Co., Cambridge, Ohio. E. C. Warner, superintendent, and Jos. Alloway, mine boss, both of Cambridge, Ohio. Drift, No. 7 seam, from 5 to 6 feet thick, furnace ventilation, and employs 40 miners and 15 day men. Inspected five times during the year, and each examination resulted in finding the ventilation commendable, and the general conditions of the mine good for pillar work and nearing exhaustion.

HARTFORD.

Situated at Hartford, Ohio, on the Eastern Ohio R. R. and operated by the Ellsworth Coal Co., Cleveland, Ohio. Harry Cameron, superintendent, Buffalo, Ohio, and J. B. Morris of the same place mine boss. Shaft 80 feet in depth, penetrating No. 7 seam of coal which is six feet thick. An eighteen foot Brazil fan is in use as a ventilating medium. One hundred and forty-eight miners and 87 day men employed. Three inspections made, and conditions satisfactory on each inspection.

TRAIL RUN.

Situated near Byesville, Ohio, on the Penna. R. R. and operated by the Ellsworth Coal Co., Cleveland, Ohio. Dennis Conroy, Robins, Ohio, superintendent, and Matthew Strauch, of the same place is mine boss. Shaft 70 feet deep to the No. 7 seam, coal $5\frac{1}{2}$ feet in thickness, and

employs 102 miners and 79 day men. Six inspections made, each inspection resulting in finding the ventilation in compliance with the law. January 21, a creep was overriding five and a half and six and a half entries; requested a cut off made through some solid pillars for a retreat in case of a sudden collapse in the affected entries. The suggestions were accepted and two watchmen guarded the creep both day and night until the escapement way was completed. June 21, the breaking of a timber on the north side landing was followed by a cavein that extended to the surface, a distance of 72 feet, which was re-timbered and made as secure as practicable. November 23, a second cavein occurred about fifty feet distant from the first, which was repaired by using heavy steel rails as timbers, there being no rock cover on that side of the shaft, and age telling on the timbers, arrangements are being made to discontinue the use of this landing definitely.

CENTRAL.

Located at Byesville, Ohio, on the Penna. R. R. and operated by the Wills Creek Coal Co., Detroit, Michigan. W. H. Davis, Byesville, Ohio, is superintendent, and Benj. Morris, of the same place is mine boss. Shaft 48 feet deep, No. 7 seam, $5\frac{1}{2}$ feet thick, and ventilated by a fan and employs 60 miners and 20 day men. Visited five times and on each inspection found in as good condition as practicable for a mine in which the pillars are being drawn in view of abandonment. October 7, found the mine finished and equipment being brought to surface. Requested maps filed as directed by law as soon as convenience would permit.

BLUE BELL.

Located at Opperman, Ohio, on the Eastern Ohio R. R. and operated by the Opperman Coal Co., Cambridge, Ohio. Thos. Richards, Cambridge, Ohio, superintendent, and C. W. Lewis, Pleasant City, Ohio, mine boss. Shaft opening 80 feet deep, which employs 150 miners and 35 day men. Six visits made. June 11, accompanied by Chief of the Department, Hon. George Harrison, at which time a violation of the law governing breakthroughs was found in practice by driving beyond the specified distance. Requested that this violation cease, and breakthroughs made every 60 feet, and a better system of posting observed by the miners.

LITTLE KATE.

Situated near Byesville, Ohio, on the Penna. R. R. and operated by the National Coal Co., Akron, Ohio. C. H. Wilson, Byesville, Ohio, is mine boss, and G. L. Walkinshaw, Byesville, Ohio, is superintendent. Shaft opening 92 feet deep, penetrating the No. 7 seam of coal which is from 5 to 6 feet thick, and is ventilated by means of a fan. One

hundred and 60 miners and 60 day men employed. Inspected three times during the year, and found the mine in good condition at each inspection. On June 3, and August 26, advised that a map of the old Pioneer mine be consulted in order to protect the east entries in this mine that are approaching the old Pioneer mine which is filled with water, and when in close proximity requested that advance holes be drilled until the water could be safely located.

WALHOUNDING.


Located at Pleasant City, Ohio, on the Penna. R. R. and operated by the Wills Creek Coal Co., Detroit, Michigan. W. H. Davis, Byesville, Ohio, is superintendent, and M. S. Wolford, Buffalo, Ohio, is mine boss. Shaft 112 feet in depth to the No. 7 seam of coal which is 5½ feet in thickness, ventilated by fan, and employs 156 miners and 70 day men. Four inspections made during the year, and conditions satisfactory.

UNION No. 1.

Situated near Birds Run, Ohio, on the Penna. R. R. and operated by the Toledo Coal and Coke Co., Toledo, Ohio. U. G. Williams, Birds Run, Ohio, superintendent, and W. K. Salmon, same place is mine boss. Drift to the No. 6 seam from 3 to 4 feet thick, furnace ventilation, employing 34 miners and 15 day hands. Four inspections made. December 11, realizing that the temporary furnace then in use would prove inadequate to ventilate the mine for a large force of men advised that a fan be secured and placed in operation by the approach of Spring. March 11, repeated this request to secure the fan as indications assured a deficiency in the ventilation would follow, and also advised that the shaft with a fan could be used as an escapement way when properly equipped. June 7, a large furnace had been constructed, and the ventilation in splendid condition; requested an escapement way provided at the earliest possible convenience. September 30, the escapement way was not completed, the foreman claiming that ninety feet farther would reach the surface.

GUERNSEY BRICK.

Located at Byesville, Ohio, on the Penna. R. R. and operated by the Guernsey Brick & Coal Co., Cambridge, Ohio. Chas. Rabe, Cambridge, Ohio, is superintendent and mine foreman. Drift, No. 7 seam of coal, which is from 2½ to 5 feet high, ventilated by a furnace and employs 8 miners and 3 day men. Three inspections made during the year. On each visit the ventilation was commendable. August 5, requested an escapement way provided or the force employed to not exceed ten men. Owing to faults, the coal is deficient. The manufacture of a good quality of brick and building block made from the fire clay



underneath mixed with a portion of the slate overlaying the coal, and the coal fuelling the plant with convenient shipment for surplus coal, and other products, is proving profitable. This is the only instance in this district where the No. 7 shale and clay are being manufactured.

DETROIT.

Located at Derwent, O., on the Penna. R. R. and operated by the Wills Creek Coal Co., Detroit, Michigan. W. H. Davis, Byesville, superintendent, and K. Head, mine foreman, of Ava, Ohio. Shaft 185 feet deep and employs 170 miners and 70 day men. Inspected five times. On May 25, owing to impaired stoppings the ventilation was deficient at the face of several entries. Mr. Head, who had just assumed the management realized the condition and assured me that repairs would hastily follow. On October 11, suggestions had been complied with and the ventilation commendable.

IMPERIAL.

Located at Derwent, Ohio, on the Penna. R. R. and operated by the Imperial Coal Co., Cleveland, Ohio. James Orr, Byesville, Ohio, superintendent, and W. A. Oliver, same place mine boss. Shaft opening 110 feet deep, No. 7 coal which is from 5 to 6 feet thick, ventilated by a fan and employs 220 miners and 94 day men. Visited four times. April 16, advised that the airway leading from the inlet on the north side of the down cast be connected with the north side workings as soon as possible and the stoppings leading from the south inlet tightened up. November 14, previous suggestions excepting the connection of the north airway, which was being pushed to completion, had been complied with. The ventilation was in good condition at this time. O'Gara King & Co., Chicago, Illinois, have purchased this mine and assumed full control January 1, 1905. No change has been made in the managers.

MIDWAY.

Situated near Byesville, Ohio, on the Penna. R. R. and operated by the Midway Coal Co., Detroit Michigan. W. H. Davis, Byesville, Ohio, superintendent, Benj. Morris, mine boss, of the same place. New slope 100 feet deep to the No. 7 seam of coal which is 6 feet thick. Two inspections made. August 5, a partition in the hoisting slope afforded ventilation by natural pressure for the entry men. December 28, the second opening was completed and a Columbus fan on the ground ready to be placed in position. Sixty day men are employed, all working by the day. The miners will start work January 1. Endless rope with a hoisting capacity of 1,600 tons daily is now in operation, and modern appliances along all lines are being installed. A large

coal field is controlled by this company. This mine will class with the modern and most productive of this State.

NICHOLSON No. 2.

Located near Byesville, Ohio, on the Penna. R. R. and owned by the Ohio Coal Co., Cambridge, Ohio. E. C. Warner, Cambridge, Ohio, is superintendent, and L. L. Veach, of the same place is mine boss. Shaft opening 65 feet deep, penetrating the No. 7 seam of coal which is 5 feet 3 inches thick. December 28, shaft was being placed in order for hoisting. The second opening which will be a slope 190 feet long, is under construction. Entries will start when prepared to ship coal. April 1, 1904, advised a fifteen foot fan to be used as a ventilating medium. Coal was reached about October 1, 1904. Equipment will be of the latest modern designs.

KINGSTON.

Situated near Lore City, Ohio, on the B. & O. R. R. and operated by Morris Coal Co., Cleveland, Ohio. J. C. Kyte, Cambridge, Ohio, is superintendent, and Jerry Pearson, Guild, Ohio, mine foreman. Shaft opening 100 feet deep to the No. 7 seam of coal which is from 5 to 6 feet thick, ventilated by an eighteen foot Brazil fan. One hundred and seventy-seven miners and 85 day men are employed. Six inspections made, and on each inspection, with minor repairs, which were promptly made, the mine was in excellent condition.

LEATHERWOOD No. 2.

Located near Cambridge, Ohio, on the B. & O. R. R. and operated by the Ohio & Northwestern Coal Co., Cambridge, Ohio. T. E. Alexander, Cambridge, Ohio, superintendent, and Wm. Bernard, same place, mine boss. Drift opening to the No. 7 seam of coal, which is 5½ feet thick and ventilated by a fan. Sixty miners and 37 day hands employed. Inspected four times. December 29, 1903, the child labor law was being violated, and at my request the law was complied with. Requested that advance holes be carried in the entry approaching the old C. C. C. mine which had been abandoned and flooded with water. May 23, the mine had ceased operation to install additional equipment. December 29, found the mine had remained idle since May 1, and a 250 horse power engine, a 150 K. W. Morgan-Gardner generator, a twelve ton motor and Morgan-Gardner mining machines had been added to the former equipment, and operations will resume January 3, 1905.

BLACK TOP.

Situated near Lore City, O., on the B. & O. R. R., and operated by the Somers Coal Co., Cleveland, O. Fred Somers, Cambridge, O., superintendent and B. H. Beaty, same place, mine boss. Shaft, 120 feet in dept, No. 7 seam, 5½ feet deep, and ventilated by fan, and employs 120 miners and 47 day men. Five inspections made. August 1 the law governing break-throughs was being violated in a few instances; requested a close observance of the laws pertaining to mines. October 15 one violation of the child labor law existed. Wm. Beaty, being unaware of this violation, removed the child from the mine when apprised of his age. Building block is used in this mine in making stoppings between the main air courses, which has proven a success for the time being; their continuation as satisfactory stoppings will be determined by how they will be effected by the settling of the mine as excavations increase.

KLONDIKE.

Located at Klondike, on the B. & O. R. R., and operated by the Loomis Moss Coal Co., Akron, O. Jas. Moss, Cambridge, O., superintendent and Allen Trehern, Kipling, O., mine foreman. Slope, 150 feet long, penetrating the No. 7 seam, which is from 5 to 6 feet thick. Fan ventilation is in use as a ventilating medium; 92 miners and 40 day men employed. Three inspections made. June 1, requested that a greater volume of air be circulated to face of the fifteenth and sixteenth east, and the rock entry and break-throughs made every 60 feet in working places, this distance in two instances being passed. December 13 mostly pillar work was in operation, the pillars on the following east entries, which had reached the limit of the coal field, were being drawn in a commendable and safe manner: Fifth and sixth, seventh and eighth, ninth and ten, eleventh and twelfth, thirteenth and fourteenth and fifteenth; the work was divided in three sections, Jas. Moss, Thos. Moss and Allen M. Trehern each having charge of a section, giving their whole time guarding against the dangers that surround pillar drawing. The entries in new territory were being pushed, and the condition of the mine was good.

MURRAY HILL.

Located near Klondike, on the B. & O. R. R., and operated by the Akron Coal Co., Akron, O. Wm. Rigby, Cambridge, O., is superintendent and Clarence Long, Kipling, O., mine boss. Slope, penetrating the No. 7 seam, coal being from 5 to 6 feet in thickness, fan ventilation, and employs 70 miners and 25 day men. Three visits made, and on each inspection found the ventilation excellent. April 12 requested hand-rails placed in the stairs in the escapement shaft. December 19 the improvement was made and no suggestions given.

CLEVELAND No. 1.

Situated at Senecaville, O., on the Eastern Ohio R. R., and operated by the Somers Cambridge Coal Co., Cleveland, O. Mark Coe, Senecaville, O., is superintendent and Robert Farrow of the same place is mine foreman. Shaft, 198 feet in depth, to the No. 7 seam of coal, from 5 to 6 feet thick, fan ventilation, and employs 78 miners and 16 day hands. Inspected four times. March 9 considerable fire-damp was generating in the entries, a strong current of air rendering it harmless. Requested every available precaution practiced in guarding against the dangers of explosions. On March 25, learning that an explosion had occurred the day previous, and seriously burning five men, proceeded to the mine to investigate and found that Wm. Christopher, a miner, had violated the orders of the fire boss, passed the danger mark and went up on a fall, that had fallen the previous night, with an open light on his head igniting the gas in the cave-in, resulting as above stated. Again gave orders for precaution along every line. June 14, accompanied by Chief Inspector, Hon. George Harrison, a careful examination was made. No standing gas was found, yet it was generating in many parts of the mine. We requested that an obstruction caused by a fall in the air-course, near shaft bottom, be removed. Mr. Harrison requested that all the usual precautions be used in the mine to prevent local or general explosions. December 16, finding the ventilation deficient, investigated the inlet of air and found a portion of the obstruction ordered by the Chief and myself still unremoved, and the remaining area three-fourths closed with ice, which was removed and the air volume increased from 16,000 to 24,000 cubic feet per minute. Completed the examination, finding conditions improved. Requested the obstruction in the inlet removed the next day and the fanspeeded to force not less than 35,000 cubic feet of air per minute into the mine, all stoppings made tight and the airshaft visited daily and to allow no accumulations of ice therein.

LINGO.

Located near Quaker City, O., and is a domestic drift mine, penetrating the No. 8 seam of coal, which is about $3\frac{1}{2}$ feet thick. Lewis Lingo, Quaker City, O., is operator and manager. Two miners employed. November 17 responded to a complaint supposed to have come from this mine forewarning serious danger. My examination resulted in finding two miners sixty feet from daylight, driving an entry from the main to the location selected for the airshaft. Suggested that the airshaft be completed as soon as possible and advance by driving the double entry system, as intended by the operator. The mine was developing lawfully, an investigation showing that my informant was not in the employ of Mr. Lingo, but was involved in difficulty with him in farming affairs.

TUSCARAWAS COUNTY.

EAST GOSHEN No. 1.

Located near Klondike, O., on the C. & P. R. R., and operated by the East Goshen Coal Co., Cleveland, O. Wm. Empfield, New Philadelphia, O., superintendent and Samuel Miles, same place, mine boss. Drift opening, to the No. 6 seam, which is from 4 to 5 feet thick, furnace ventilation, employs 175 miners and 56 day men. Inspected five times. April 21 suggested that shaft be sunk near the face of No. 6 west entry, in order to ventilate a field of coal developed in a nook in that section. July 20 found the shaft completed, and the ventilation equal to the demands. On all occasions the management has been willing to comply with my suggestions when fully convinced of their necessity. Your official visit to this mine, in company with Assistant Inspector W. H. Miller and myself, December 22, 1904, was greatly appreciated by the management and its employees.

EAST GOSHEN No. 2.

Under the same management as the No. 1 mine, and same superintendent, with Jno. Dougal, New Philadelphia, O., as mine boss. Slope, 125 feet long, to the No. 6 coal, which is about 4 feet thick; fan ventilation, employing 60 miners and 26 day men. Five inspections made. Four different mine foremen have been in charge during the year, and as many different opinions and practices put in operation on the inside management, which does not always prove profitable to the investors. Jno. Dougal, the veteran mine foreman in the No. 6 coal seam, who assumed charge September 1, has vastly improved conditions and appearances by cleaning roads and airways and substantial timbering, and directing the work systematically to secure a greater production. Your official visit, accompanied by District Mine Inspector W. H. Miller, on December 22, and the suggestions made were gratifying to all interested.

REEVES No. 1.

Located near New Philadelphia, O., on the C. & P. R. R., and operated by the Reeves Coal Co., Canal Dover, O. Richard Clemens, Canal Dover, superintendent and Jno. Smith, New Philadelphia, O., mine boss. Drift, No. 6 seam, which is about 3 feet in thickness. Furnace ventilation, and employs 33 miners and 10 day men. Five visits made. May 27 suggested that the fifth and sixth west entries be cross timbered every four (4) feet, as they advanced through a narrow peak leading to the principal field of coal, which is four feet thick. June 4 this suggestion was being complied with. This mine was formerly reported as the Beaver, and operated by the Eagle Coal and Miping Co., the transfer and the change of title

occurring April 1, 1904. Your official visit and wise suggestion, made at this mine on December 21, was well accepted.

REEVES No. 2.

Located near the No. 1 mine, and under the same management, with J. A. Sprinkle, New Philadelphia, O., mine boss. Drift opening, No. 6 seam, coal four (4) feet thick, fan ventilation, employing 60 miners and 24 day men. Visited four times, and conditions good on each visit. Mr. Clemens, being a mining engineer and a practical miner combined, fully equips him for successful management. The outside equipment is of the most modern. Brick stoppings are constructed between main air courses, the ventilation being directed by well constructed brick overcasts. An eighteen (18) foot Brazil fan drives the air current through the mine. These conditions and improvements may appear expensive to an observer, but if investigated it will be found that the expense of building doors, trapper's wages, and the building of decayed stoppings is offset by the above system. Great care was exercised in locating the opening in order to reach the coal field at the point where the coal field in general could be removed advantageously and economically, a precaution that oftentimes is overlooked, prompted by cheap openings for the time being, than a profitable exit to a large coal field. This mine was reported formerly as North Goshen. The official name is as above stated, the ownership remaining the same.

BEAVER DAM No. 1.

Located near Klondike, O., on the C. & P. R. R., and operated by the Beaver Dam Coal Co., Cleveland, O. O. L. Chalker, New Philadelphia, O., superintendent and Bert Frazier, Vickers, O., mine boss. Shaft, 75 feet in depth, No. 6 coal, about 4 feet thick, fan ventilation, and employs 141 miners and 26 day men. Inspected three times. April 19 requested a general tightening up of brattices and doors and the air current increased at the working faces of the entire mine. Gathering motors have been installed, and working successfully. Two have been in operation several months and two more will be added soon. In my opinion they are the coming motive power to gather the low coal where the smallest mules must be had. They dispense with shooting the top or lifting bottom, which curtails a great expense to producers.

BEAVER DAM No. 2.

Located near Midvale, O., on the B. & O. R. R., and operated by the same company as the No. 1 mine, with Frank English as mine boss, of New Philadelphia, O. Shaft, 86 feet deep, No. 6 seam of coal, coal 4

feet thick, ventilated by means of a fan, and employing 70 miners and 20 day men. Inspected three times. This being a new opening, first coal shipped was April 25, 1904. July 7 the stairs were being placed in the second opening; suggested that a speaking-tube be provided. December 1 stairway and speaking-tube were in order and the mine in excellent condition. December 22, while in consultation with you on your official visit to this mine, we suggested a cut-around be made right at the shaft bottom, believing the distance of the run-around being inconvenient for all emergencies. This mine is equipped to gather and deliver all the coal to the bottom with motors, there being only one mule in the mine at this time, which will be relieved from its prison life eventually. Three gathering motors are delivering the coal from room face to shaft bottom. When distance is acquired and the motor partings made, a large motor will be placed in service. The methods and efforts of this company to provide safety for their employes and make their work pleasant is most commendable. Thribble entries are going north and south.

GOSHEN SHAFT.

Located near Klondike, on the C. & P. R. R. and operated by the Goshen Coal & Mining Co., Cleveland, Ohio. D. P. Loomis, New Philadelphia, Ohio, is superintendent, and Peter Ries, same place, mine boss. Shaft 100 feet in depth, No. 6 seam, which is four feet thick, ventilated by a fan and employing 69 miners and 36 day men. Visited five times. The escapement, which is a slope, 520 feet in length, was completed about July 15, and the fan already constructed and set in operation. Coal was struck in hoisting shaft in October, 1903. Modern equipment is provided, and the advancement of the workings have been found lawful on each examination.

WAINWRIGHT NO. 4.

Located at Wainwright, Ohio, on the B. & O. R. R. and operated by the Wainwright Coal Co., Cleveland, Ohio. Frank McIntosh, New Philadelphia, Ohio, is superintendent, and J. N. Horger, Wainwright, Ohio, is mine foreman. Slope with slight grade 600 feet long, penetrating the No. 6 seam of coal which is about $4\frac{1}{2}$ feet in thickness, furnace ventilation, employing 110 miners and 22 day men. Three visits were made. With the exception of a few minor repairs required, the general conditions were good. Your official visit to this mine, December 20, and valuable suggestions, were approved by the company and greatly appreciated by myself.



Mouth of Slope of Mine No. 6, owned by the Midvale-Gesheu Coal Co.,
Cleveland, Ohio. Located at Wainwright, Ohio.



Rear View of Tipples and Storehouses

"WAINWRIGHT No. 6 MINE."

During the week commencing December 19, and ending December 24, 1904, we personally, in company with District Mine Inspectors W. H. Turner, Cambridge, Ohio, and W. H. Miller, Massillon, Ohio, inspected a number of mines in the Tuscarawas Valley, of which the Wainwright No. 6 is one, and found them amongst the best mines in the State, and have just cause to compliment District Mine Inspector W. H. Turner and the management of these mines for the good condition in which they were found, and their strict observance of the Mining Laws. Especially were these mines well ventilated.

The company operating the mining property known as the Wainwright No. 6 mine has favored the Mining Department with a number of cuts of their mine, which we herewith publish in connection with the following detailed description of their plant, which with its entire equipment, we consider a great credit to Mr. F. S. Powers, secretary and treasurer, Mr. H. Sheldon, general manager, and all those connected with the Midvale-Goshen Coal Co., Cleveland, Ohio. Mr. Frank McIntosh, general superintendent, who has charge of this company's mines, is so well known as an efficient veteran mine manager that his name needs no mention, only that we thank him and Mr. Sheldon for the courtesies extended our party while making our visit to those mines.

DESCRIPTION.

This mine is located at Wainwright, Tuscarawas County, Ohio, and is operated by the Midvale-Goshen Coal Co., Cleveland, Ohio, and was opened up during the latter part of the year. It is an up-to-date plant in every respect, having added a number of new and important features connected with the production and handling of coal in a speedy and economical manner.

The tippie is of steel construction, no wood being used except the flooring, and contains 90,000 pounds of metal. The cars come up a slope on a 12 degree grade, and reaching the summit run down of their own momentum to the automatic cross-over dump. The last car dumped stands in place until the next load comes down and trips the support, when it shoots ahead and is automatically back-switched, returning on an independent track to a point where it is caught by a dog on the cable chain and returns into the mine.

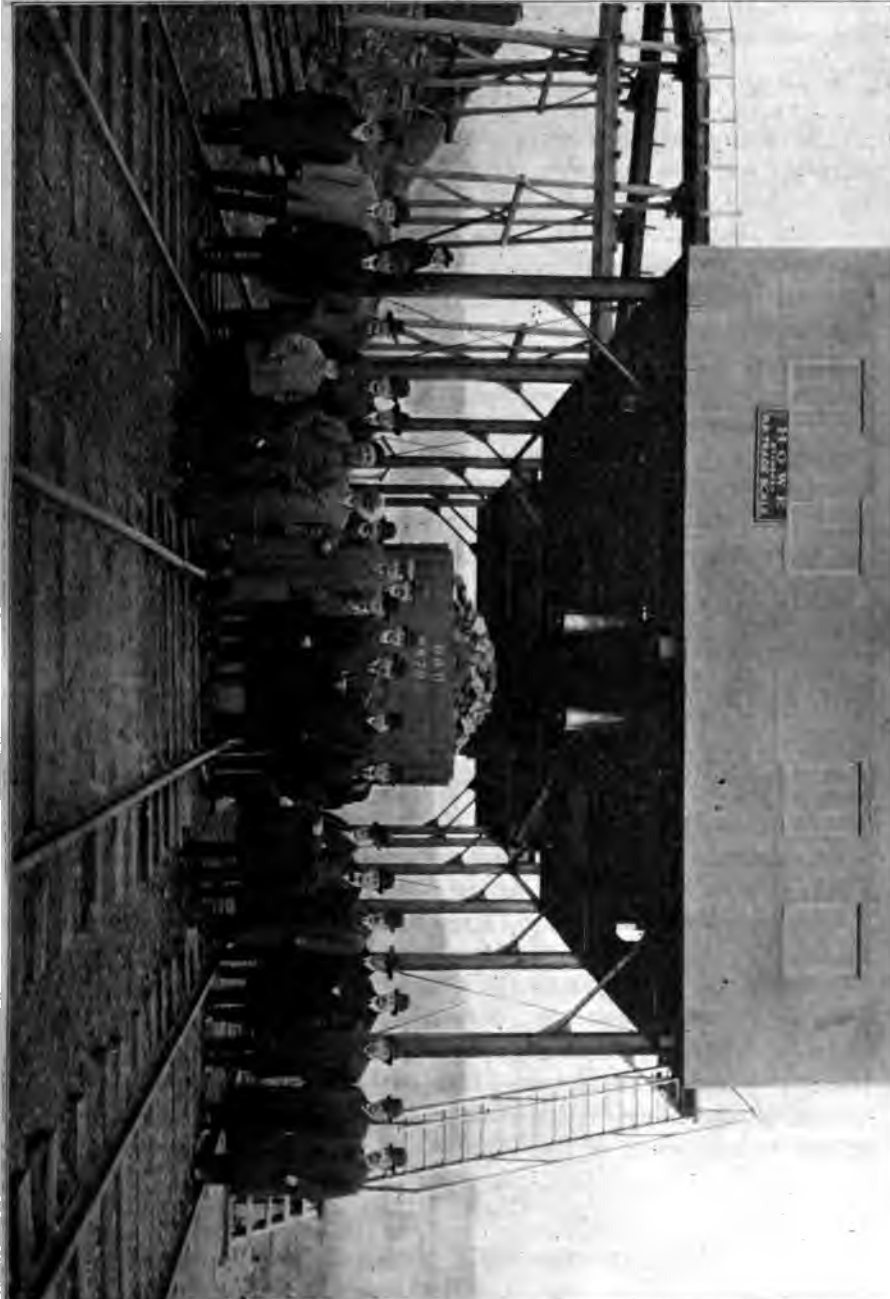
An end-to-end automatic drop coal pan is also in use. It stands in line with the railroad track and distributes the coal in such a manner as to prevent breakage. The car-haul is guaranteed to deliver six cars per minute on slow speed and fifteen cars on high speed, an average of eight cars per minute.



General View of Tipple and Power House.



Underside of Tipple, Showing Screen and Car Dump.



The Officials of Wainwright Mine No. 6, and their Guests at their mine, Wainwright, Ohio.

The capacity of the mine is 2,500 tons daily. This new plant was designed by Engineer F. C. Greene, Cleveland, Ohio, and is an excellent piece of work. Electric coal cutting machines are used in the mine.

In visiting and inspecting the mines of the Tuscarawas Valley, our attention was also favorably called to the mines owned and operated by the Reeves Coal Co., Canal Dover, Ohio.

Mr. Richard Clemens, Canal Dover, Ohio, is superintendent, and is a young man and a thorough practical mining engineer, and as such deserves special commendation for the manner in which these mines are laid out and the great care exercised around the shaft in leaving specially strong pillars for the protection of same, and designing the tracks for expediency in handling coal; for the application of brick stoppings between main entries, and for the overcast system of ventilation, dispensing with the use of doors on the main haulway, and the expense, annoyance and danger resulting therefrom.

The following mines were also visited and deserve special mention for the manner in which their operations were being conducted: Jas. Mullen Coal Co., Midvale-Goshen Coal Co., Goshen Central, Goshen Hill, Goshen Coal Mining Co., East Goshen Coal Co., Beaver Dam Coal Co., Massillon-Tuscarawas Coal Co., Somerdale Coal Co., and the Cleveland-Tuscarawas Coal Co.'s, West Goshen mine.

GEO. HARRISON, *Chief Inspector of Mines.*

WAINWRIGHT No. 6:

Situated near Wainwright on the B. & O. R. R. and under the same management as the No. 4 mine, with James Hardwidge, Wainwright, Ohio, as mine boss. Slope, 307 feet long, No. 6 seam, which is $4\frac{1}{2}$ feet thick. Nineteen miners and 10 day men employed, fan ventilation is in use. Three visits made. March 15, the sinking was progressing. July 8, coal had been struck, and a modern end loading tippie was under construction. On December 20, honored with your presence in an official visit, we were assured that Mr. McIntosh, who rose from a practical miner and devoted many years of his life in managing mines, in the No. 6 coal, is combining the ideas and a life's experience to make this one of the leading mines of the State.

GOSHEN HILL.

Situated near Klondike, Ohio, on the C. & P. R. R. and operated by the Goshen Hill Coal Co., Cleveland, Ohio. Frank McIntosh, is superintendent and Geo. McIntosh, mine foreman, both of New Philadelphia, Ohio. Drift mine, to the No. 6 seam, the coal being $4\frac{1}{2}$ feet in thickness, furnace ventilation and 60 miners and 17 day men em-

ployed. Four inspections made, and each inspection resulted in finding the mine in good condition.

MIDVALE NO. 3.

Located at Barn Hill, Ohio, on the B. & O. and has as its superintendent, Frank McIntosh, with Edw. Taylor, Barnhill, Ohio, as mine boss. Drift, No. 6 seam, $4\frac{1}{2}$ feet thick, furnace ventilation, employing 50 miners and 9 day men. Two visits made and on each visit found the conditions satisfactory, as you observed on your official visit to this mine, December 19.

GOSHEN.

Situated near Beidler, Ohio, on the B. & O. R. R. and operated by the Goshen Coal Co., Cleveland, Ohio. John Dougal, New Philadelphia, Ohio, is superintendent and mine boss. Drift opening to the No. 6 seam, which is $4\frac{1}{2}$ feet thick, furnace ventilation, and employs 100 miners and 25 day men. Inspected twice. March 18, some suggestions of minor matters were given. General conditions were good on each visit.

GOSHEN CENTRAL.

Situated east of New Philadelphia, Ohio, on the C. & P. R. R. and operated by the Goshen Central Coal Co., Massillon, Ohio. W. K. Moore, New Philadelphia, Ohio, is superintendent and mine boss. Drift opening to No. 6 seam, $3\frac{1}{2}$ feet thick, ventilated by a furnace and employs 30 miners and 9 day men. Visited three times. March 16, suggested an escapement way be provided at the earliest opportunity. Each inspection proved the ventilation in excellent condition. December 22, found the escapement way not yet provided, the height of the coal being deficient, preventing them from reaching the crop line at a suitable place. The indications now are that this mine will pierce thicker coal, and be relieved from the drawbacks and annoyances that the deficient coal has caused from its opening. Wm. K. Moore, Ex-Mine Inspector, is to be commended for the practical skill displayed in the timbering, and the straightness of his main entrance, and the general plan of the mine. It is to be regretted that he was compelled to encounter low coal in his efforts to establish a model mine. Your official visit at this mine, December 22, was very pleasing to all concerned.

WEST GOSHEN.

Located near Joyce, Ohio, on the Penna. R. R. and operated by the Cleveland and Tuscarawas Coal Co., Cleveland, Ohio. R. M. Mason, Coshocton, Ohio, superintendent, and Emery Ankeny, Joyce, Ohio, mine boss. Drift opening penetrating the No. 6 seam of coal $3\frac{1}{2}$ to 5 feet thick, employing 132 miners and 37 day men. July 6, suggested that a furnace displace the iron basket then in use as a ventilating medium

in the part of the mine known as the new hill. December 24, electric power had been installed, the management informing me that a new fan would be placed in the new hill shaft; fan being my preference, the change was acceptable.

EGYPT.

Located six miles northeast of New Philadelphia, Ohio, on the C. & P. R. R. and operated by the J. Mullen Coal Co., Cleveland, Ohio. Wm. Kutz, superintendent, and John Featherstone, New Philadelphia, Ohio, mine foreman. Drift opening, No. 6 seam of coal 4 feet in thickness, fan ventilation, employing 124 miners and 36 day men. Inspected four times. August 30, Section 298 of the Mining Laws pertaining to breakthroughs was being violated in some instances by driving beyond the distance specified. Requested the law observed as close as practical in this respect. A strenuous effort was made in this mine to introduce electrical chain machines successfully which was thwarted by the continuous sulphur strata near the bottom of the coal seam. An air compressor is now provided, and the punching machines are now being tested, and it is thought will prove a success.

CENTRAL VALLEY NO. 1.

Situated near New Cumberland, Ohio, on the W. & L. E. R. R. and operated by the Massillon-Tuscarawas Coal Co., Massillon, Ohio. R. W. Johns, Massillon, Ohio, superintendent, C. C. Smith, Somerdale, Ohio, mine foreman. Drift, No. 6 seam from $3\frac{1}{2}$ to 4 feet thick, furnace ventilation, the fan formerly in use being moved with the compressed air power to the new opening now known as Central Valley No. 2. Sixty miners and 12 day men employed. Three inspections were made. With a few minor suggestions offered the conditions of this mine were always found satisfactory. The field entered by this opening being limited and nearing exhaustion, will be abandoned in a few months, as you learned on your official visit to this mine on December 23.

CENTRAL VALLEY NO. 2.

Located one mile from the No. 1, and operated by the same company and managed by the same officials. Drift, No. 6 seam, which is from $3\frac{1}{2}$ to 4 feet thick, ventilated by a fan and employs 18 miners and 8 day men. Once inspected, accompanied by you in your official visit proved the mine developing fully in compliance with the law, and the removal of the punching machines from the No. 1 to this opening guarantees their successful operation in the No. 6 coal.

SOMERDALE No. 2.

Situated at Somerdale, O., on the W. & L. E. R. R., and operated by the Somerdale Coal Co., Cleveland, O. Jas. Hardwidge, Somerdale, O., superintendent and mine boss. Drift opening, No. 6 seam of coal, which is from $3\frac{1}{2}$ to 4 feet thick, furnace ventilation, and employs 58 miners and 15 day men. Visited twice. February 23 mine in good condition. July 1 found that lightning had struck the tipple on June 25, causing a conflagration which consumed the entire building and a rope trip of mine cars and several railroad flats, throwing the resident miners of the village idle and the company undecided as to future intentions.

SOMERDALE No. 1.

Located at Somerdale, O., and operated by the same company as the No. 2. D. R. Morris Somerdale, O., superintendent and mine boss. Drift, No. 6 seam of coal, from $3\frac{1}{2}$ to 4 feet thick, furnace ventilation, employing 25 miners and 6 day men. Two inspections made. November 16 found the rope haulage had been removed from the No. 2 mine, which operated on a small scale, suspended in 1902 and resumed operation, the intention being to eventually intersect the No. 2 mine near the workings and continue that field. A new airshaft and furnace had been provided, with ample capacity for good ventilation. December 23, when honored by an official visit from you, it was suggested that a ladder be placed in the old airshaft to constitute an escapement way.

HOUK.

Situated at Stillwater, O., on the B. & O. R. R., and operated by the American Sheet Steel Co., Canal Dover, O. J. L. Houk, Stillwater, O., superintendent and Daniel O'Conner, same place, mine foreman. Drift, No. 7 coal, 5 feet thick, a fan being used as a ventilating medium; 60 miners employed and 20 day men. Visited twice, no suggestions made further than to request a continuance of their compliance with the mining law.

MASSILLON PEACOCK.

Located near Mineral City, O., on the Valley R. R., and operated by E. Van Kirk, Mineral City, O. Jno. Puncheon, Mineral City, superintendent and mine boss. Drift opening, No. 5 seam of coal, which is 4 feet in thickness at this point. Furnace is the ventilating medium, and 41 miners and 22 day men employed. One inspection made, and conditions satisfactory. This mine was idle during the summer months, owing to the dullness of the market.

NOVELTY.

Located at Newcomerstown, O., on the Penna. R. R., and operated by the Novelty Brick & Coal Co., Newcomerstown, O. R. L. Shumaker

superintendent and Geo. Adams mine foreman, both of Newcomerstown, O. Drift mine, No. 6 seam, coal about $3\frac{1}{2}$ feet thick, furnace ventilation, employing 28 miners and 7 day men. Four visits made during the year. April 6, owing to a fall behind the furnace, ventilation was deficient; the men were removed from the mine and the fire drawn at once, in order to remove the obstruction. May 14 repairs were made, and the ventilation excellent. June 27 found the mine just resuming operation, after one month's idleness. Requested all loose stone taken down along the entries. December 5 found the mine had changed hands on October 1, and ceased operation October 5, in order to install a compressed air plant and operate punching machines. The plant was about ready to resume operations, the mine road had been remodeled and in excellent condition, indicating that the future would place this formerly small mine to a much greater production and more successful operation.

INDIAN HILL.

Located near Uhrichsville, O., on the P., C., C. & St. L. R. R., and operated by the Hiawatha Coal Co., Toledo, O. Jno. Renold, Uhrichsville, O., superintendent and mine boss. Drift opening, No. 6 coal, 4 feet thick, fan ventilation, employing 50 miners and 19 day men. Inspected twice. April 22 suggested the removal of refuse along the main dilley road, in order to make room for stepping aside for the dilley. September 22, finding the work partially completed, renewed my suggestions to complete the work.

BUCKHORN.

Located near Newcomerstown, O., on the Penna. R. R., and operated by George Markley, Mineral City, O. E. C. Kuhn, Wolf, O., is superintendent and mine foreman. Drift opening, penetrating the No. 6 seam of coal, which is from $2\frac{1}{2}$ to $3\frac{1}{2}$ feet thick, furnace ventilation, and employs 20 miners and 6 day men. Four inspections made, resulting in finding the mine satisfactory on each examination. June 27 requested that the map be extended and filed, which was then delinquent.

ACME.

Situated near Mineral City, O., on the Valley R. R., and operated by George Markely, Mineral City, O. E. C. Jones, Mineral City, O., is superintendent and mine boss. Drift opening, penetrating the No. 6 seam, which is about 4 feet thick. Sixteen (16) miners and 2 day hands employed. September 23 the mine had been idle since June, caused by a dull market, with no prospects of immediate resumption. November 16 the mine was being placed in condition for resumption.

LAUGHLIN.

Located at Crescent, O., on the C. & P. R. R., and operated by the Mineral City Coal Co., Mineral City, O. Drift opening, to the No. 6 seam of coal, which is about 4 feet thick, employing 12 miners and 7 day hands. One inspection made during the year. September 23 mine was idle, pending the completion of an escapement shaft near the face of the workings, which had been previously suggested by me as an escapement way for the miners in case a fire should occur at the gasoline engine, located between the main entry and air course and between the men and both former outlets. On September 12 a fire occurred and the timely presence of the mine foreman, who prevented the flames from igniting the brattices and operating the doors to convey the fumes from the miners, a possible calamity was averted. Five gallons of gasoline were consumed. I was assured by the company that no effort to resume operation would be made until the escapement way was completed and available means of egress provided. If gasoline continues to be a factor in mines, strenuous laws should direct the safety of lives who are subjected to the dangers originating from same.

SUGAR CREEK.

Situated at Sugar Creek, O., on the W. & L. E. R. R., and operated by the Drake Coal Co., Cleveland, O. R. M. Mason, Coshocton, O., superintendent and Jacob Lawrence, Sugar Creek, O., is mine foreman. Slope opening, penetrating the No. 6 seam, which is $3\frac{1}{2}$ feet thick. A furnace is the ventilating medium, and 48 miners and 16 day men are employed. June 22, finding the air diluted with carbonic acid gas, which was generating in the old works along the intake, suggested that the air current be reversed and the new shaft at face of the workings be made the inlet. June 30 the change had not yet been made, and repeated my suggestion. August 18 the proposed change was perfected, pure air admitted to the miners, and black-damp collected on the return to the furnace, which was satisfactory.

CARBON HILL.

Located at Newport, O., on the B. & O. R. R., and operated by the Carbon Hill Coal Co., Toledo, O. J. M. Shanks, Uhrichsville, O., superintendent and mine foreman. Drift opening, to the No. 6 seam of coal, $3\frac{1}{2}$ feet in thickness, furnace ventilation and employs 30 miners and 10 day men. Visited once. June 8 suggested a few minor details that would distribute the air more equally throughout the mine. Irregularity of work prevented additional visits to this mine.

MAPLE GROVE.

Situated at Uhrichsville, O., and provides fuel for the Buckeye Pottery and city trade. Operated by Schindler Bros., Tuscarawas, O. H. A.

Schindler superintendent and G. E. Schindler mine foreman, both of Tuscarawas, O. Drift opening, No. 6 seam of coal, furnace ventilation, employing 12 miners and 2 day hands. The coal is here 4 feet thick. One inspection made. April 22 requested the taking down of the loose stone supported by decayed timbers in the main entry and 4 doors hung at the entrances of as many rooms where single entry work was practiced and the furnace fire increased.

HUFF'S RUN NO. 1.

Located at Mineral City, O., on the Valley R. R., and operated by the Ridgeway-Burton Coal Co., Cleveland, O. Geo. Robson, Mineral City, O., superintendent and mine foreman. Drift opening, penetrating the No. 5 seam of coal, which is $3\frac{1}{2}$ feet in thickness, fan ventilation, and employs 42 miners and 12 day men. Inspected twice during the year, and on each inspection found the results satisfactory.

HUFF'S RUN NO. 2.

Situated near Mineral City, O., on the Valley R. R., and W. & L. E. R. R., and operated by the same company as the No. 1, Alex Lindsay, Mineral City, O., being superintendent and mine boss. Drift opening, to the same seam of coal, from $2\frac{1}{2}$ to $3\frac{1}{2}$ feet thick, furnace ventilation, employing 24 miners and 10 day men. February 27 requested that the men be removed from fifth and sixth west entries until a body of water, temporarily dammed in old works on high ground, could be pumped out, and the force reduced to ten men at any one time in the mine until an escapement way was provided. July 1 the conditions were acceptable, the company discovering that their coal territory was limited concluded to finish with ten men and avoid preparing an escapement way. November 16 found the mine exhausted and abandoned, and requested that map be placed on file in the office of the Mining Department and the County Recorder of Tuscarawas County.

LONG MEADOW.

Located near Huff's Run No. 2 mine, on the Valley R. R. and W. & L. E. R. R., and operated by the same company with the same superintendent as at the No. 2 mine. Drift opening, No. 6 seam of coal, $3\frac{1}{2}$ feet thick, furnace ventilation, employing 20 miners and 7 day hands. Three inspections made during the year. Repeated visits found conditions lawful but the coal diminishing, a series of drill holes informing them that the remainder of their territory was barren of this seam. November 16 found the mine exhausted and abandoned. On October 29, 1904, this mine worked the No. 6 coal seam overlaying Huff's No. 2 mine, which worked the No. 5 seam of coal directly underneath with 49 feet of strata between

the seams. Product from both mines was dumped over the same tipple. Ready shipment over two lines of railroad provided a market which kept the mines in steady operation from the beginning to the finish of these mines. The usual deficiency in thickness in overlapping coal seems here developed.

TWIN CITY.

Situated near Dennison, O., on the Pennsylvania R. R., and operated by the Dennison Coal Co., Dennison, O. H. Hirst superintendent, Midvale, O., and Jos. Hirst, same place, is mine boss. Drift opening, No. 6 coal, which is about 4 feet thick, and employs 20 miners and 11 day hands. Three inspections made during the year, the ventilation being satisfactory on each visit. On September 21, being informed that entries Nos. 11 and 12 were approaching abandoned workings that could not be explored, shut off by falls and containing water, suggested that advance holes be drilled ahead to guard against the danger of a sudden inflow by blowing through.

BALTIC.

Situated at Baltic, Ohio, on the W. & L. E. R. R. and operated by C. A. Townsend Coal Co., Cleveland, Ohio. James Gainey, Baltic, Ohio, is superintendent and mine foreman. Drift opening, penetrating the No. 5 seam of coal, which is $3\frac{1}{2}$ feet thick, ventilated by means of a furnace and employs 16 miners and 4 day men. One visit made and the mine found in excellent condition, no suggestions being offered.

MOREY RIDGE.

Located near Beidler, Ohio, on the B. & O. R. R. and operated by C. J. Nungesser, Beidler, Ohio, who also superintends the mine. Drift opening to the No. 6 seam of coal which is four feet thick. Visited three times, and found idle on two occasions. Suggested that a mine foreman be placed in charge to fill the vacancy caused by the recent resignation of Mr. Hills. Otherwise conditions were satisfactory.

GLOBE.

Situated near New Comerstown, Ohio, fueling the Globe City Pottery and operated by the Globe Fire Clay Co., New Comerstown, Ohio. G. A. Deardorf, superintendent, Canal Dover, Ohio, and H. N. Maus, of the same place is mine boss. Drift opening to the No. 6 seam of coal which is from $2\frac{1}{2}$ to 3 feet thick. Natural pressure is the medium of ventilation. Four miners and 2 day hands are employed. Two inspections made during the year. May 14, the ventilation was deficient, and suggested that an air shaft be provided at the earliest convenience. June 27, the air shaft was completed and the ventilation ample for the

small force then employed. The company anticipate an increase in the number employed. Suggested that the area be enlarged in short air course leading to shaft and a furnace or iron basket be provided for ventilating purposes.

ROYAL COAL NO. 2.

Located near Midvale, Ohio, on the B. & O. R. R. and operated by H. E. Cole, Midvale, Ohio. C. Fox, superintendent, Midvale, Ohio, and Wm. Ferless, mine foreman from the same place. Drift to the No. 6 seam of coal which is four feet thick, furnace ventilation and employs 35 miners and 10 men by the day. Inspected four times. Mine was opened up in 1903. A clay mine was excavating under the No. 5 coal seam directly under this mine. Suggested that the pillars of this mine be made directly under the pillars of the clay mine, which probably would avert trouble as there were only fifty feet of strata between the mines. This suggestion not being put in practice, December 23, 1903, visible signs of a crush on the main entry prompted me to suggest an additional escapement way made near the working faces which was promptly provided. June 9, found the mines had telescoped during the night. About May 1, four men were mining coal to feed the pottery from large pillars outside the crush. December 8, a new entry had been driven from daylight and intersected the workings beyond the creep. A furnace was under construction in the new shaft. Advised that greater care be given in preserving the safety of both mines in future operations, thus profiting by past experience.

ROYAL COAL NO. 3.

Situated at Midvale, Ohio, on the B. & O. an operated by the same company as the No. 2 mine. Chris Fox, superintendent, Midvale, Ohio, and T. J. Watson, same place is mine foreman. Drift, No. 6 seam, four feet in thickness, furnace ventilation employing 40 miners and 13 day men. Five visits made. This mine was formerly owned by the Midvale & Goshen Coal Co., and known as the Midvale No. 2 mine. After exhausting their territory, H. E. Cole, possessing a small field of coal adjoining the mine, purchased the plant and proceeded to remove his coal and accessible pillars left by the former company. June 9, requested that the sand washed in the inlet of air by a recent unusual rain be removed. September 22, request complied with and conditions satisfactory.

ROYAL COAL NO. 1.

Located near Midvale, Ohio, the coal being consumed by a pottery operated by John J. Scott, Lessee, who is superintendent and mine boss, Midvale, Ohio. Drift penetrating the No. 6 seam of coal, ventilated

by a furnace and employs two miners and one day man removing a few accessible pillars left by Mr. Cole, the former operator; this once accomplished, the mine will be abandoned. January 1, 1904, conditions were as good as practical at this stage of working.

ROYAL CLAY NO. 2.

Situated near Midvale, Ohio, production manufactured at same place, and operated by the Sewer Pipe & Fire Brick Co., Uhrichsville, Ohio. Hugh Diehl, New Philadelphia, O., is superintendent, and Eugene Smith, of the same place is mine boss. Drift opening penetrating the fire clay underneath the No. 5 seam of coal, fan ventilation, employing six miners and three day men. Two inspections made. Information that a miner had been overcome with foul air led me to this mine June 9, and found the air unfit for healthy respiration; suggested that a fan be provided at the earliest convenience. December 3, found the new air shaft sunk and the fan in operation, and the management well pleased with the investment. Suggestions were offered for a proper distribution of the air throughout the mine which will produce perfect ventilation.

ROYAL CLAY NO. 1.

Located near the No. 2 mine, the clay being used at the same pottery and managed by the same company and officials. Slope opening 100 feet in length penetrating the clay strata underneath the No. 5 seam of coal which is 8 feet thick, ventilated by a fan and employs 12 miners and 2 day hands. Inspected twice and each examination awarded with satisfactory results. The No. 3 clay mine has been connected by entry to this mine and ventilated by same fan and both mines are now known as the No. 1 mine. Some of the surface clay underlying the No. 6 coal seam was being dug from the hillside; when visited on December 3, a perpendicular bank ten feet high had formed from the removal of the clay. Four men were employed. suggested that the bank be properly braced with timbers or cut sloping to avoid opportunities of accident from caving.

DIAMOND COAL.

Located at Uhrichsville, Ohio, and is used to fuel the Diamond Pottery operated by the American Clay Manufacturing Co., Akron, Ohio. George Ross, superintendent and mine boss, Uhrichsville, Ohio. Drift opening, No. 6 seam of coal which is four feet thick, ventilated by a furnace. Visited twice during the year. Mine idle on both occasions and the examinations were omitted.

NOBLE COUNTY.

NOBLE.

Located near Bell Valley, Ohio, on the Penna. R. R. and operated by the Imperial Coal Co., Cleveland, Ohio. James Orr, Byesville, Ohio, superintendent, and John Dunn, Caldwell, Ohio, is mine foreman. Shaft opening 185 feet deep, penetrating the No. 7 seam of coal which is 6 feet thick, ventilated by a fan and employs 120 miners and 70 day men. In company with you in your official visit to this mine June 13, when it was transferred to District Five it was discovered that an unseen cause was reducing the fan capacity and requested an investigation of the downcast. Including this date, five inspections were made of this mine since it came under my jurisdiction. Returned June 22; the downcast had been examined and a scaffold removed which had been overlooked when placing the fan in order. Owing to leakages in the partition, between the downcast and hoisting shaft, the air current in the mine did not compare with the velocity of the fan. Requested that the air shaft be made as air tight as practical. August 19, previous request had been complied with and the fan forcing the air satisfactory, the second opening now being down and the stairway constructed. Requested that the shaft be girdled and the drippings collected and the stairway made as dry as practical and the standing water in the entry leading to the stairway removed. November 25, again requested that the road to the stairway be kept dry and a fall of slate removed from the inlet at shaft bottom. This mine generates light carbureted hydrogen gas freely. One local explosion occurred, seriously burning James Orr, superintendent, prior to my official connection with the mine. O'Gara King & Co., Chicago, Illinois, purchased this mine, assuming operation and control January 1, 1905. Joseph Collins, Byesville, Ohio, succeeded John Dunn as mine foreman on the date of the transfer, being the only official change made in the management of this mine.

LAURA.

Situated at Coal Ridge, Ohio, on the Penna. R. R. and formerly operated by the Eastern Ohio Coal Co., Cleveland, Ohio, but is now under control by the Valley Coal Co., Detroit, Michigan, assuming control January 1, 1904. W. H. Davis, superintendent, Byesville, Ohio, and C. M. Woods, Bell Valley, Ohio, mine foreman. Shaft opening 176 feet deep, penetrating the No. 7 seam of coal which is from 5 to 6 feet thick, ventilated by a fan and employs 60 miners and 31 day men. Seven visits made during the period covered by this report. This opening struck deficient coal in August, 1902, when sunk; several hundred yards of entry were driven west through faults before normal coal

was struck. No effort was made to force a second opening while the search for coal was progressing, the number employed at any one time being limited to twenty men. Coal full height was struck just prior to the transfer of the mine. Being desirous of working without a limit as to the number of men, the new company proceeded to at once sink a second opening. May 24, the escapement way was completed and a stairway being constructed. June 13, at which time it was visited by you on your official visit with me to this mine resulted in finding it in good condition. When visited September 24, and December 8, no suggestions were offered.

MUSKINGUM COUNTY.

BUKER.

Located near Otsego, transportation by wagon, and is a domestic mine, operated by W. R. Buker, Otsego, O. Drift opening, to the No. 6 seam of coal, the coal being $3\frac{1}{2}$ feet thick. Airshaft is the mode of ventilation, which is natural. One miner employed, a dog hauling the coal to the surface. One visit made during the year on December 16, and the mine in good condition.

DAVIS.

Situated near Otsego, and the product consumed for domestic fuel, and is operated by T. H. Davis, Otsego, O. Drift, No. 6 seam of coal, $3\frac{1}{2}$ feet thick. This is the old Simons mine reopened, which has been suspended for twenty-five years. The west entries were driven one hundred yards distance from entrance and no airshaft had been provided. Visited on December 16, no miners being employed on this date. Finding the air deficient, suggested that an airshaft be sunk near the face of No. 1 entry West and the double entry system practiced from the shaft forward in developing the mine.

RINEY.

Located near Otsego, the coal being sold to wagon trade, and operated by G. T. Riney, Otsego, O. Drift mine, No. 6 coal, $3\frac{1}{2}$ feet thick, and ventilated by natural pressure. Four (4) miners are employed, the coal being hauled to the surface by dogs. December 16 found the main air course creeping and unreliable for future ventilation, and suggested that a shaft be sunk at a point where the obstructed airway could be abandoned.

SPRAGUE.

Located near Otsego, the coal consumed by domestic trade. Drift, No. 6 seam of coal, and operated by E. G. Sprague, Otsego, O. An iron basket is in use as a ventilating medium. Two miners were employed,

who pushed their coal to the surface. December 16 found this mine in good condition.

WALKER.

Situated near Otsego, O., the product being used for domestic fuel. Drift opening, to the No. 6 seam of coal, which is $3\frac{1}{2}$ feet in thickness, and is operated by C. P. Walker, Otsego, O. One (1) miner employed. December 16 found conditions satisfactory for the small force employed. This mine is ventilated by natural pressure.

HAMILTON.

Located near Otsego, O., the coal being consumed by domestic trade. J. P. Hamilton, Otsego, O., is operator and manager. Drift opening, to the No. 6 seam of coal, $3\frac{1}{2}$ feet thick, ventilated by natural pressure, and employs 4 miners. Inspected once, on December 17, and conditions satisfactory.

JACKSON.

Situated near Otsego, O., and operated by Jno. Jackson. Visited December 17 and found idle, owing to the mine being flooded with water, the mine had suspended, with no intentions of early resumption.

SIXTH DISTRICT.

JAS. P. DAVIS.

CARROLL, COLUMBIANA, MAHONING, TRUMBULL, PORTAGE
AND A PORTION OF JEFFERSON.

HON. GEORGE HARRISON, *Chief Inspector of Mines, Columbus, O.*

SIR:—Herein is submitted a report of the number of mines inspected, the permanent improvements made, the number of new mines opened, the number suspended and the number abandoned, the number of scales tested, the number of fatal accidents and mine fires that have occurred during the year that has just closed. This report covers a period of time beginning November 15, 1903, and ending December 31, 1904.

From November 15, 1903, to April 30, 1904, the department was under the management of Chief Inspector E. G. Biddison, at which time he was succeeded by the Hon. George Harrison. This district embraces the counties of Carroll, Columbiana, Mahoning, Trumbull, the eastern part of Jefferson and the Thompson Run mines in Tuscarawas county.

I have made 260 inspections of the mines during the year and have tested 20 pairs of scales. Out of this number, 4 pairs were found incorrect. Thirty-four permanent improvements were made in the district; 15 new mines were opened, 7 of which will be equipped with electrical machinery and operated on an extensive scale; 3 mines were suspended, and 5 were abandoned.

The coal trade in this district during the year that has just closed has not been as good as in previous years for various reasons, the chief reason being over-production. On an average, the mines in this district were not in operation more than half time. The mines in the northern part of Columbiana county were idle the greater part of the year, because of the excessive amount of explosives used in blasting the coal, causing it to be produced in an unmarketable condition. This is becoming a great menace to the health and general safety of the men employed in the mines and will, no doubt, necessitate restrictions in its use.

The total number of fatal accidents was 16, of which 10 were credited to Jefferson county, 5 to Columbiana county and 1 to Carroll County. A few of these accidents may be termed as unavoidable, but a very large per cent was due to carelessness and neglect on the part of the miner and the mine management.

On Feb. 19, I was called to the Zerbe mine, located at Amsterdam, on account of a fire which had originated in the mine, fortunately in a pair of face entries, and was supposed to have been caused by a shot igniting the gas. The fire had been burning for two days. I had two solid brick walls built across the entries to shut off the air. These were left standing a number of weeks until the fire had been entirely extinguished.

On December 1, I was called to the Amsterdam mine, located at Amsterdam, on account of a fire which had originated in the mine. I called on Chief Inspector Harrison and District Inspector McGough for assistance. We found the fire had originated in the second left entry, and was supposed to have been caused by a shot igniting the gas. For a time the situation was serious, on account of gas generating. Orders

given by the department were carried out by the management, which put the fire under control, and in a short time put it out.

In regard to a miners' protection in a coal mine: He should be his own guardian, and acquaint himself thoroughly with the duties required of him so that he would be able to discharge them intelligently, both for his own safety and the safety of others. He should know more about his particular working place than the mine foreman (who may be seldom in the place, and when he is it may be but for a moment). Mine foremen are usually taken from the ranks of the miners, and are seldom chosen for their superior judgment. Many of them do not have much experience, but are chosen because of some good traits that command respect or it may be for some other reason. Perhaps a brother or some friend is superintendent.

In conclusion, will say that the entire year of my official relations has been of a pleasant character, and I wish to extend my thanks to you for advice given and many courtesies shown.

Respectfully submitted,

JAS. P. DAVIS, Salem, O.,

Inspector of Sixth District.

December 31, 1904.

COLUMBIANA COUNTY COAL MINES.

NEW SHAFT.

Location, Salineville, O. Transportation, C. & P. R. R. Operated by the Big Vein Coal Co., Cleveland, O. E. J. Marshall superintendent, Lisbon, O. Wm. Thomas, mine foreman, Salineville, O. Is a shaft opening, 40 feet deep, penetrating the No. 7 seam of coal, which is from 4 to 6 feet in thickness. A fan is used as a means of ventilation, 60 miners and 50 day hands are employed. Five inspections were made during the year. The mine was always found in fair condition. The mine is equipped with an electric plant, which furnishes the power for cutting the coal. The rope system of haulage is used. Great care and expense are necessary in order to avoid accidents, on account of the treacherous draw-slate and the generating of fire-damp.

CEDAR HILL.

Location, two miles east of Salineville. Transportation, C. & P. R. R. Operated by the Big Vein Coal Co., Cleveland, O. E. J. Marshall superintendent, Lisbon, O. Mathew Smith mine foreman, Salineville, O. Is a drift opening, to the No. 7 seam of coal, which is about 5 feet thick. A fan is used as a means of ventilation, 70 miners and 20 day hands are employed. Two inspections were made during the year. The mine was found in first-class condition. The coal is used for steam purposes, and is said to be of good quality. The mine has been idle since August. Rope haulage is used to convey the coal to the chutes.

OLD SLOPE, OR SLOPE NO. 1.

Location, Salineville, O. Transportation, C. & P. R. R. Operated by the O. & P. Coal Co., Cleveland, O. Superintendent, Jas. Black, Salineville, O.; John Gallagher, mine foreman, Salineville, O. Is a slope of 900 feet, to the No. 7 seam of coal, which varies in thickness from 4 to 6 feet. A fan is used as a ventilating medium; 125 miners and 40 day hands are usually employed. Six inspections were made during the year. On June 1 was called to this mine on account of a squeeze on the main haul-way. I made an inspection of this mine in company with Inspectors Miller and McGough, and found that nothing could be done to avert the trouble. On July 5, I made another visit to this mine, and found that the squeeze had practically settled and that the mine was in operation. On December 14 was called to this mine to investigate a fatal accident. Joseph Heasley was instantly killed here on the morning of December 14.

by a fall of slate. This mine has been in operation for about twenty years, and is worked on the double entry plan. The coal is mined by electrical machinery and three motors are used in hauling the coal to the chutes.

STRABLEY.

Location, Salineville, Ohio. Transportation, C. & P. R. R. Operated by J. S. Strabley, Salineville, Ohio. Superintendent, J. S. Strabley, Eli Blazy, mine foreman, Salineville, Ohio. Is a drift opening to the No. 7 seam of coal, which is about five feet thick. A fan is used as a means of ventilation. About 35 miners and 10 day hands find employment. Four inspections were made during the year. The tippie was completely destroyed by a flood the first week in March, but has been re-built, and the mine is in good order. The coal is used for steam purposes, and usually finds a ready market.

NEW SLOPE, OR SLOPE NO. 2.

Location, Salineville, Ohio. Transportation, C. & P. R. R. Operated by the O. P. Coal Co., Cleveland, Ohio. Superintendent, James Black, Salineville, Ohio, Pat Maher, mine foreman, Salineville, Ohio. Is a slope opening of 1,250 feet to the No. 7 seam of coal, which is about 4 feet thick. A fan is used as a ventilating medium. Six inspections were made during the year. The mine was usually found in good order. The coal is hauled by an electric motor to the No. 1 chutes, where it is loaded with the coal from Slope No. 1. Almost the entire output of these two mines is shipped to Cleveland, where it is used for steam purposes.

LEETONIA.

Location, Leetonia, Ohio. Transportation, P. F. W. & C. R. R. Operated by the Leetonia Coal Co., Leetonia, Ohio. D. M. Stoffer, superintendent, Leetonia, Ohio, Mike Brady, mine foreman, Washingtonville, Ohio. Is a slope of 150 feet to the No. 3 seam of coal, which is about 2 feet 6 inches in thickness. A fan is used as a ventilating medium. About 70 miners and 15 day hands are employed. Five visits were made to this mine. The mine was usually found in fair condition. The coal is all blown from the solid, and it is almost impossible for a mine boss to keep a mine in the order it should be with this system of mining that is practiced here. Doors and brattices are blown to pieces by the excessive amount of powder used in blasting the coal, besides the coal is so fine that it is unfit for market. This mine was suspended in the early part of September on account of the present system of mining the coal.

PROSPECT HILL NO. 1.

Location, East Palestine. Transportation, P. F. W. & C. R. R. Operated by the Prospect Hill Coal Co., East Palestine, Ohio. Grant Hill, superintendent, East Palestine, Ohio, Thos. Stackhouse, mine foreman, East Palestine. This is a slope opening of 300 feet, penetrating the No. 6 seam of coal, which is about 3 feet 6 inches in thickness. A fan is used as a means of ventilation. About 90 miners and 15 day hands are employed. Four inspections were made during the year. The mine was always found in fair condition. The coal is mined by the use of the air-punch machine. Rope haulage is used to convey the coal to the chutes.

FAIRFIELD NO. 2.

Location, New Waterford, Ohio. Transportation, P. F. W. & C. R. R. Operated by the Fairfield Coal Co., Cleveland, Ohio. John Moon, superintendent, New Waterford, Ohio, Wm. Chasteen, mine foreman, New Waterford, Ohio. Is a drift opening to the No. 6 seam of coal, which is about 3 feet 10 inches in thickness. A fan is used as a means of ventilation. About 125 miners and 25 day hands are employed. Three inspections were made during the year. The mine was always found in good order. A system of rope haulage is used at this mine, the coal being hauled at least a distance of three miles. The coal is used for both steam and domestic purposes, and gives general satisfaction.

STATE LINE NO. 1.

Mine location, East Palestine, Ohio. Transportation, P. F. W. & C. R. R. Operated by the State Line Coal Company, Cleveland, Ohio. Hugh Laughlin, superintendent, East Palestine, Ohio, Geo. Suthern, mine foreman, East Palestine, Ohio. This is a drift opening to the No. 6 seam of coal, which is about 4 feet in thickness. A fan is used as a ventilating medium. About 160 miners and 20 day hands find steady employment. The tipple, and all machinery of this mine, and about 1,900 feet of the main haulway are in Ohio. The mining is all done in Pennsylvania.

STATE LINE NO. 3.

Mine location, East Palestine, Ohio. Transportation, P. F. W. & C. R. R. Operated by the National Fire Proofing Co., Pittsburgh, Pa. David Bolinger, superintendent, East Palestine, Chas. Jones, mine foreman, East Palestine, Ohio. Is a drift opening to the No. 7 seam of coal, which is about 2 feet 6 inches thick. A fan is used for ventilating purposes. Eighteen miners and 5 day hands are employed. This is a coal and clay mine combined. From three to four feet of clay, which lies directly under the coal, is being mined. The clay is manu-

factured into sewer pipe and building blocks. The coal is all consumed at their plant.

PROSSER No. 4.

Location, Lisbon, Ohio. Transportation, Erie R. R. Operated by Card & Prosser, Lisbon, Ohio. Thos. Prosser, superintendent, Lisbon, Ohio, David Lewis, mine foreman, Lisbon, Ohio. Is a drift opening to the No. 6 seam of coal, which is 2 feet 2 inches in thickness. A fan is in use as a ventilating medium. Thirty-five miners and 8 day hands are employed. Two inspections were made during the year. From three and one-half to four feet of clay is being mined with an electric chain machine, and is hauled to the top of the incline by an electric motor. The clay is ground at the plant, and finds a ready market at rolling mills, and blast furnaces throughout the country.

LISBON.

Located at Lisbon, Ohio. Transportation, Erie R R. Operated by the Lisbon Coal Co., Lisbon, Ohio. E. J. Marshall, superintendent, Lisbon, Thos. Thomas, mine foreman, Lisbon Ohio. Is a drift opening to the No. 3 seam of coal, which is from three to three and one-half feet in thickness. A fan is in use as a means of ventilation. Usually about 75 miners and 20 day hands found employment. The mine was idle from March until July on account of being drowned out. From 20 to 30 men are employed at present taking out the pillars. The solid coal in this mine is all exhausted. The mine will possibly be worked out, and abandoned the coming year.

NEW HOUSE.

Mine location, Elkton, Ohio. Transportation, the Lisbon & Western R. R. Operated by the Herriott Coal Co., Elkton, Ohio. C. C. Herriott, superintendent, Elkton, Ohio, Jonah Byers, mine foreman, Elkton, Ohio. Is a drift opening to the No. 6 seam of coal, which is about 3 feet thick. A furnace is used as a ventilating medium. Thirty miners and 9 day hands are employed. Two inspections were made during the year. The mine is equipped with an electric plant. The furnace used for ventilating the mine is not altogether satisfactory. I suggested that they install a fan, which could be easily done as they have both electric and steam power.

PLEASANT VALLEY.

Is located at Negley, Ohio, on the Lisbon & Western R. R., and is operated by the Powers Mining Co., Negley, Ohio. P. M. Murphy, superintendent, Negley, Ohio, Joe Biggins, mine foreman, Negley, Ohio. This is a drift opening to the No. 6 seam of coal, which is about 2 feet 6 inches in thickness. A furnace is in use as a ventilating medium.

This mine has been idle during the latter part of the year. I was called to this mine on February 10, to investigate a fatal accident. S. F. Franklind was instantly killed while using a device, made out of two bars of iron, for throwing the machine over after the run was made. While the machine was in motion, Mr. Franklind was thrown into the chain, and his head and shoulders were ground off. He was warned by the superintendent not to use these bars as it was very dangerous, but he disobeyed orders with the above results.

PINE HILL.

Is located three miles west of Lisbon on the Erie R. R., and is operated by Card & Prosser, Lisbon, Ohio. Thos. Prosser, superintendent, Lisbon, Ohio, Wm. Lewis, mine foreman, Teegarden, Ohio. This is a shaft opening 50 feet deep, penetrating the No. 3 seam of coal, which is about 3 feet thick, and is of good quality. A fan is in use as a means of ventilation. Thirty-five miners and 11 day hands are employed. Two inspections were made during the year. This mine has been in operation for some years, and is practically worked out, the solid coal being almost exhausted. The mine will be abandoned during the coming year.

BIG WALNUT.

This mine is located two and one-half miles east of Salem on the Salem R. R., and is operated by the Peerless Coal Co., Cleveland, Ohio. I. N. Russell, superintendent and mine foreman, Salem, Ohio. Is a slope opening of 200 feet to the No. 3 seam of coal, which is about 3 feet thick. A fan is used for ventilating purposes. Forty miners and 12 day hands are employed. Three visits were made during the year. This mine is opened, and worked on the single entry plan. The coal is shot from the solid, and is paid for on a run of mine basis. On account of an explosion which occurred on October 31, 1903, having been caused by the excessive use of powder, shot firers were employed to avert any further danger that might occur from the same cause. An inspection of all the mines in this locality was made by George Harrison, Chief Inspector of Mines, and myself in order to ascertain whether it was more necessary to have shot firers employed at this mine than at others of like conditions. The decision was that it was not more necessary for shot firers to be employed here than at the other mines in this locality. The shot firers were taken off. This resulted in a strike which lasted sixty days when a settlement was reached, the miners agreeing to mine or cut half the coal. The shot firers were put on again, and the coal is now produced in much better condition.

CHERRY VALLEY.

Location, Washingtonville, Ohio. Transportation, Erie R. R. Operated by the Cherry Valley Iron Works, Leetonia, Ohio. E. M. Peters, superintendent, Leetonia, Ohio. Daniel McGrath, mine foreman, Leetonia, Ohio. Is a slope opening of 1,600 feet, penetrating the No. 3 seam of coal, which is three and one-half feet in thickness. A fan is in use as a ventilating medium. About 90 miners and 25 day hands find employment. Three visits were made during the year. This mine is worked on the single entry system, each entry being ventilated by the use of overcasts. This was one of the best regulated mines in this part of the district. The coal was shot from the solid, and paid for on a run of mine basis. On account of this system of mining, the coal was produced in an unmarketable condition, which caused the company to abandon the mine, leaving about 800 acres of solid coal.

SALEM.

Is located two miles east of Salem on the Salem R. R., and is owned by the Salem Coal Co., Salem Ohio. Wm. Dunn, superintendent and mine foreman, Salem, Ohio. Is a drift opening to the No. 3 seam of coal, which is about 3 feet thick. A fan is used as a means of ventilation. Two inspections were made. This mine was practically drowned out the fore part of the year, so that very little work was done. On November 1, the mine was closed down indefinitely on account of the system of mining the coal. The company states that it is impossible to compete with others in the market under the present system of mining, and also that operations will not be resumed until the coal is mined on a screen basis.

FARQUHAR SHAFT.

Location, one mile east of Salem, Ohio. Operated by the Lemmon Coal Co., Salem, Ohio. A. H. Lemmon, superintendent, Salem, Ohio, Thos. Brothers, mine foreman, Salem, Ohio. Is a shaft opening 120 feet deep, penetrating the No. 3 seam of coal, which is about 3 feet thick. Steam exhaust is used as a means of ventilation. Fifteen miners and 5 day hands find employment. Two inspections were made during the year. This mine is of the domestic class. The entire output is hauled to Salem and consumed there.

AVERAGE.

Location, Washingtonville, Ohio. Is owned and operated by J. D. Smith, Washingtonville, Ohio. This is a drift opening to the No. 3 seam of coal, which is about 3 feet in thickness. A fan is used as a ventilating medium. Fourteen miners and 4 day hands are employed.

This mine is of the domestic class, the coal being teamed to Washingtonville.

M McNABB SHAFT.

Is located at Salem, just outside the city limits, and is operated by the Salem Fuel Co., Salem, O., and is under the supervision of John T. Reese, Salem, O. This is a shaft opening, 235 feet, penetrating the No. 3 seam of coal, which is about 3 feet thick. A fan is in use as a ventilating medium; 16 miners and 7 day hands find steady employment during the year. Five inspections were made. This mine is of the domestic class. The entire output is used in the city of Salem. This mine has more than ordinary equipment to be of the domestic class. Ingersoll mining machines are used to cut the coal. A chain machine, made by the Jeffrey Manufacturing Co. was also installed. This did not prove to be a success and was taken out. The mine is in fair condition, with the exception that there is only one opening. The number of miners was limited some time ago to twenty, on account of there being no second opening.

SMALL COAL MINES IN COLUMBIANA COUNTY.

Name of Mine.	Name of Owner or Operator.	Name and P. O. Address of Supt.	No. of Miners.	No. of Day Hands.	Kind of Opening.	Mode of Ventilation.	No. of Seam.	Thickness of Vein.	Plan of Working Mine.	Kind of Haulage.
Vasey	Kirk & Vasey.....	R. Vasey, Salineville..	8	2	Drift ...	Furnace	S. V.	3	Single	Mule.
Uneeda	Uneeda Coal Co.....	H. S. Burnett, Lisbon.	8	4	Drift ...	Furnace	3	2 1/2	Single	Mule.
Wheat Hill	Wheat Hill Coal Co..	J. Fleming, E. Palestine	12	3	Drift ...	Fan	7	3	Single	Mule.
Pine Hollow	Pine Hollow Coal Co..	James Ashman, Salem.	9	2	Drift ...	Furnace	3	2 1/2	Single	Mule.
McMillan	R. McMillen	R. McMillen, E. Palestine	5	1	Drift ...	Furnace	6	3 1/2	Single	Mule.
Sears	Jas. Leeper	Jas. Leeper, Salem...	4	1	Drift ...	Furnace	3	2 9/16	Single	Mule.
Bousal	Auld & Son.....	Robt. Auld, Salem...	6	2	Drift ...	Furnace	3	3	Single	Mule.
Bush Ridge	Joe Shrever	Joe Shrever, Salem...	5	2	Drift ...	Furnace	3	3	Single	Mule.
Shepherd	Jesse Shepherd	J. Shepherd, Salem...	6	2	Drift ...	Furnace	3	3	Single	Mule.
Neiheisel	Neiheisel Bros	J. Neiheisel, Salem...	8	2	Slope ...	Furnace	3	3	Single	Mule.
Booth	A. K. McMillen.....	A. K. McMillen, Salem	5	3	Drift ...	Furnace	6	3' 4"	Single	Mule.
Sheehan	Jas. Sheehan	Jas. Sheehan, Salem, O.	3	2	Shaft ...	Natural	3	3	Single	Mule.
Howell	C. Howell	C. Howell, Salem, O.	3	1	Drift ...	Fan	3	2' 9"	Single	Mule.

CLAY MINES IN COLUMBIANA COUNTY.

Name of Mine.	Kind of Opening.	Name of Firm or Owner.	No. Men Employed.	P. O. Address.
No. 36	Drift	American Sewer Pipe Co.	7	Lisbon.
Oak Hill	Slope	Columbia Fire Clay Co..	12	Cleveland.
Buckeye	Drift	McLann Fire Brick Co..	13	Wellsville.
Vulcan	Drift	Vulcan Fire Clay Co....	12	Wellsville.
N. K. & A.....	Slope	American Sewer Pipe Co.	7	E. Liverpool.
Walker No. 1.....	Drift	American Sewer Pipe Co.	9	E. Liverpool.
Champion	Drift	Champion Clay Co.....	10	Wellsville.

CARROLL COUNTY COAL MINES.

SOMERS No. 3.

Mine location, Sherrodsville, O. Transportation, W. & L. E. R. R. Operated by the Somers Mining Co., Cleveland, O. Wm. Maloney superintendent, Sherrodsville, O.; Joe Breehl, mine foreman, Sherrodsville, O. Is a shaft opening, 136 feet deep, to the No. 6 seam of coal, which is about 4 feet thick. A fan is used as a means of ventilation. About 100 miners and 35 day hands are employed. Six inspections were made during the year. On August 17, I found that the mine had been neglected by the mine foreman, and was in poor condition. Doors, brattices and air-courses were found in very poor condition. A new mine foreman had just been put on. The necessary improvements were suggested by me. On my return, on October 12, I found the mine in much better condition. Brattices had been repaired, air-ways cleaned and some new doors put up. The mine is worked on the double entry system. The coal is mined by electrical machinery.

SOMERS No. 2.

Location, Sherrodsville, O. Transportation, W. & L. E. R. R. Operated by the Somers Mining Co., Cleveland, O. Wm. Maloney superintendent, Sherrodsville, O.; Harry Harris, mine foreman, Sherrodsville, O. Is a shaft opening of 71 feet, to the No. 6 seam of coal, which is about 4 feet thick. A fan is used as a ventilating medium. About 125 miners and 45 day hands are employed. Four inspections were made during the year. This mine was always found in first-class condition. The coal is largely used for steam purposes, and is of fair quality. Almost the entire output is shipped to the rolling mills at Newburg, O. This mine is equipped with an electrical plant, and is worked on the double entry system.

No. 5.

Location, Sherrodsville, O. Transportation, W. & L. E. R. R. Operated by the Van Kirk Mining Co., Mineral City, O. J. F. Myers superintendent, Sherrodsville, O.; P. S. Robertson, mine foreman, Sherrodsville. This is a drift opening, to the No. 7 seam of coal, which is from $3\frac{1}{2}$ to $4\frac{1}{2}$ feet thick. A furnace is used as a means of ventilation; 13 miners and 4 day hands find employment. Three inspections were made during the year. This mine was at one time owned by the Somers Mining Co., and was abandoned on account of a fault or "horse-back" cutting out the coal. The Van Kirk Mining Co, reopened it, and expect to get to a new territory through the old opening.

HEATHERINGTON BIG VEIN.

Location, Salineville. Transportation, C. & P. R. R. Operated by the Sterling Mining Co., Cleveland, O. Superintendent, John Hileman, Washingtonville, O.; R. Heatherington mine foreman, Salineville, O. Is a slope opening, 125 feet long, penetrating the No. 7 seam of coal, which is four feet thick. A fan is used as a ventilating medium. About 35 miners and 10 day hands are employed. Two inspections were made during the year. The mine was found in good condition. The coal is hauled from this mine to the chutes by a third-rail electric motor, which has given entire satisfaction.

HEATHERINGTON No. 3.

Location, Salineville, O. Transportation, C. & P. R. R. Operated by the Sterling Mining Co., Cleveland, O. John Hileman, superintendent, Washingtonville; R. Heatherington, mine foreman, Salineville, O. Is a drift opening, to what is known as the "strip" vein of coal, which is 3 feet thick. A fan is used for ventilating purposes; 23 miners and 15 day hands are employed. Two inspections were made during the year. This mine has been idle most of the year, on account of the miners and the company not being able to make a satisfactory agreement in regard to the mining of the coal. An agreement was reached about October 1, and the mine resumed operations about October 9. The quality of the coal is considered good, and is used both for domestic and steam purposes. The mine is worked on the single entry plan. The coal is mined by electric chain machines, and is hauled to the chutes by a third-rail motor.

BEATTY.

Is located at Magnolia, O., and is owned by the National Fire Proofing Co. Hermann Kessler, superintendent, Magnolia, O.; Chas. Darr mine foreman, Magnolia. Is a drift opening, to the No. 5 seam of coal, which is from 4 to 6 feet thick. A furnace is used for ventilation. About 15 miners and 5 day hands are employed. The entire output of this mine is consumed at their block and tile plant.

LINDEN No. 6.

Mine location, Lindentree, O. Transportation, Valley R. R. Operated by the Davis R. R. Coal Co., Canton, O. W. L. Davis superintendent, Canton, O.; J. J. Evans mine foreman, Lindentree, O. This is a drift opening, to the No. 6 coal, which is about 3 feet, 6 inches in thickness; 60 miners and 20 day hands are employed. Three inspections were made during the year. The ventilation in this mine had not been satisfactory for some time. A new fan was installed the fore part of the year, which is giving entire satisfaction. The coal is mined by electric machines and the rope haulage system is used to convey the coal to the chutes.

MAGNOLIA.

Location, Magnolia, O. Transportation, C. & P. R. R. Operated and owned by the Magnolia Coal Co., Magnolia, O. Joe Degenhart superintendent, Magnolia, O.; Ed Branfield mine foreman, Magnolia, O. Is a shaft opening, 68 feet deep, penetrating the No. 5 seam of coal, which is about 4 feet in thickness, 50 miners and 25 day hands are employed. This mine is worked on the double entry system, and is ventilated by a fan. Two visits were made during the year. June 9, on examining the safety catches, I found they were not in order. I suggested that new springs be put on at once. August 26 I found that the safety catches had been repaired and were in good order. The coal is mined with electric machinery, and is shipped principally to Cleveland for steam purposes.

RUSSELL HILL SHAFT.

Located at Dellroy. Transportation, W. & L. E. R. R. Owned by the James Mining Co., Dellroy, O. Wm. James superintendent, Dellroy; Jas. H. Thomas mine foreman, Dellroy, O. Is a shaft opening, 60 feet deep, to the No. 6 seam of coal, which is about 4 feet thick. A furnace is used as a means of ventilation. About 30 miners and 10 day hands are employed. One inspection was made during the year. This is an old mine, that was abandoned about 18 years ago. The James Mining Co. re-leased and reopened the mine, and resumed operations in November, 1904. In taking into consideration the number of years the mine was idle and full of water it is in fair order.

KIRK.

Location, Salineville. Transportation, C. & P. R. R. Owned by Kirk & Deveny, Salineville, O. Harry Kirk, superintendent, Salineville, O.; John Hurst mine foreman, Salineville, O. Is a drift opening, to what is known as the "strip" vein of coal, which is about 3 feet thick. A furnace is used as a means of ventilation. About 6 miners and 2 day hands are employed. This is an old mine that has been idle a number of years, but was reopened a few months ago. Their intention is to put the mine in order and to employ a greater number of men. The coal is of good quality, and takes readily in the market.

SMALL COAL MINES IN CARROLL COUNTY.

Name of Mine	Name of Owner or Operator	Name and P. O. Address of Supt.	No. of Miners	No. of Day Hands	Kind of Opening	Mode of Ventilation	No. of Seam	Thickness of Vein	Plan of Working Mine	Kind of Haulage
Huston	R. C. Faucett	Ira Moody, Carrollton	8	2	Drift	Furnace	7	4 $\frac{1}{2}$	Single	Mule.
Rutan	D. O. Rutan	Jno. Moody, Carrollton	9	3	Drift	Furnace	7	4 $\frac{1}{2}$	Single	Mule.
Justus	D. S. Maughman	D. S. Maughman, Sherrods- ville	3	1	Drift	Furnace	7	4	Single	Mule.
Baker	W. Rutter	Wm. Rutter, Leesville	4	1	Drift	Natural	7	4	Single	Mule.
Pearch	C. Pearch	C. Pearch, Sherrods- ville	2	1	Drift	Natural	7	4	Single	Mule.
Close	Peter Close	Peter Close, Dell Roy	2	1	Drift	Natural	7	5	Single	Mule.
Preston	H. E. Preston	H. E. Preston, Lees- ville	3	1	Drift	Natural	7	4	Single	Mule.
German	D. S. German	D. S. German, Sher- rodsville	4	1	Drift	Natural	7	4	Single	Mule.

BIG 4.

Is located at Malvern, and is operated by the Big Four Clay Co., Malvern, O. Geo. Neidlinger superintendent, Malvern, O.; Henry Parker mine foreman, Malvern, O. This is a drift opening, to the No. 6 seam of clay, which is about 7 feet in thickness, and is of very good quality. Natural ventilation is all that is used at present. About 12 miners find employment. One inspection was made during the year.

SANDY VALLEY.

Location, Malvern, O. Transportation, C. & P. R. R. Operated by the Malvern Fire Clay Co., Malvern, O. John Fisher superintendent, Malvern, O.; mine foreman, Mitch Buck, Malvern, O. Is a drift opening, to the No. 6 seam of clay, which is about 7 feet in thickness. A furnace is used for ventilation. From 15 to 20 miners find steady employment. Two inspections were made during the year, which found the mine in fair condition.

MINERVA.

Location, Pekin. Transportation, O. & P. R. R. Operated by the Minerva Clay Co., Minerva, O. A. S. Curry superintendent and manager. This is a drift opening, to the No. 5 clay, which is about 5½ feet thick. A fan is used to ventilate the mine; from 6 to 9 miners find steady employment.

MALVERN.

Location, Malvern, O. Transportation, C. & P. R. R. Operated by the Robison Product Co., Akron, O. N. A. Lewton, superintendent, Malvern, O.; Albert Swift mine foreman, Malvern, O. Is a drift opening, to the No. 6 seam of clay, which is about 7 or 8 feet in thickness. A furnace is in use as a ventilating medium. From 25 to 30 miners find steady employment. Two inspections were made during the year. This is one of the largest clay mines in the district. An electric plant has been installed to do the drilling, which has proved very successful.

JEFFERSON COUNTY.

WEST PITTSBURG.

This mine is located two and one-half miles south of Bergholz, on the L. E., A. & W. R. R., and is operated by the Eastern Ohio Coal Co., Cleveland, O. R. T. Price, superintendent, Cleveland, O.; Howard

Williams mine foreman, Bergholz, O. Is a slope opening of 210 feet, penetrating the No. 6, a seam of coal which is about 5 feet thick. A fan is used for ventilating purposes; 160 miners and 45 day hands are employed. Six inspections were made during the year. This mine is equipped with an electric plant and first-class machinery throughout. The mine is worked on the double entry system. The coal is of very fine quality and gives general satisfaction for domestic purposes. It is claimed by some to be equal to the Massillon coal. Two motors are used to haul the coal to the bottom of the incline. With a few exceptions, the mine was always found in good condition.

JUMBO.

Location, Berkholz, O. Transportation, L. E., A. & W. R. R. Operated by the Salisbury Coal Co., Cleveland, O. Albert Thorp superintendent and mine boss, Berkholz, O. This is a drift opening, to the No. 7 seam of coal, which is about $3\frac{1}{2}$ feet thick. A fan is used as a ventilating medium; 35 miners and 10 day hands are employed. Four inspections were made during the year. This mine is equipped with an electric plant. Motor haulage is used. The mine has been practically idle the most of the year.

ZERBE.

This mine is located at Amsterdam, on the L. E., A. & W. R. R., and is operated by the O. & P. Coal Co., Cleveland, O. B. F. Rice superintendent, Amsterdam, O.; Henry Pollock mine foreman, Amsterdam, O. Is a shaft opening, 189 feet deep, penetrating the No. 6-A seam of coal, which is from $4\frac{1}{2}$ to 5 feet thick. A fan is used as a ventilating medium; 140 miners and 37 day hands are employed. Six inspections were made during the year. February 19, I was called to this mine on account of a fire, which had originated in a pair of face entries, having been caused by a shot igniting the gas. I had two walls built across the entries with brick and cement, in order to shut off the air. These walls were left standing for some time. On April 6, I found that the fire had been entirely extinguished. October 7, I made an inspection of this mine with Thos. Williams, a new superintendent who had just taken charge. I pointed out to Mr. Williams the improvements that were necessary to put the mine in good condition. November 23, I found the improvements had all been made and the mine was in first-class condition. The mine is equipped with an electric plant. Motor haulage is used. It promises to be one of the large mines in this district.

FLORENCE.

Is located at Hopedale, O., on the L. E., A. & W. R. R. Operated by the Witch Hazel Coal Co., Youngstown, O. D. J. Jacobs superintendent, Hopedale, O.; M. R. Wilkinson mine foreman, Hopedale, O. Is

a drift opening, to the No. 8 seam of coal, which is 5 feet thick. A fan is in use as a ventilating medium; 75 miners and 20 day hands are employed. Two inspections were made during the year. This mine is opened up on the double entry system and equipped with an electric plant. A third rail motor is used for haulage. August 3, I made an inspection of this mine, and found the doors and brattices in very poor condition. I ordered the necessary repairs made and recommended that they use the patent canvas door, on account of the third rail system of haulage. On October 18 I made another inspection of this mine and found it in an improved condition, new doors having been put up and the brattices having been repaired.

AMSTERDAM.

This mine is located one mile south of Amsterdam, Ohio, on the L. E. A. & W. R. R., and is operated by the Amsterdam Coal Co., Cleveland, Ohio. E. W. Beidler, superintendent, Amsterdam, Ohio, J. A. Collins, mine foreman, Amsterdam, Ohio. This is a shaft opening 287 feet deep, penetrating the No. 6-A seam of coal, which is 4 feet thick. A fan is in use as a means of ventilation. Fifty miners and 35 day hands are employed. Seven inspections were made during the year. This mine is opened up on the double entry plan, and is equipped with an electric plant, and with the latest improved machinery, it generates a great deal of fire damp, and great care and expense are necessary to avoid accidents. December 1, I was called to this mine on account of a fire which had originated in room seven on the second left entry, having been caused by a shot igniting the gas. The inspection was made in company with Chief Inspector Harrison and District Inspector McGough. For a time the situation looked serious. Orders were given by the department, and carried out by the management, which put the fire under control. December 5, I made an inspection of this mine in company with Chief Inspector Harrison. We found the fire under complete control. We could not see anything in the way of the mine resuming operations, and so notified the management.

"JEFFERSON MINES NO. 2 AND NO. 3."

Jefferson mines No. 2 and No. 3, the subject of the following cuts, are located on the main line of the L. E. A. & W. R. R., and are owned and operated by the Jefferson Coal Co., whose main office is located at Cleveland, Ohio. Calvary Morris is president, and John E. Newell, vice-president and treasurer. John Simpson is general manager and has entire charge of these workings. He is a mine manager of wide experience and is well known throughout the coal regions. Reports from those mines, and all appearances around the mines, indicate that with such men as Mr. Simpson in active charge of mining properties, the best interests of both operators and miners are well cared for.



General View at Piney Fork, Ohio, from above the No. 2 Opening, owned by the Jefferson Coal Co., Cleveland, Ohio.



Power House, Trestle and Incline at No. 3 Mine, Located at Piney Fork, Ohio, and owned by the Jefferson Coal Co., Cleveland, Ohio.

and that this Department can rely on the Mining Laws being strictly observed.

The coal resources of Jefferson County have for the past three years been subject to quite extensive development, the principal operations being made by two concerns, the Jefferson Coal Co., and the United States Coal Co. The Jefferson Coal Co., operates three or more distinct plants at or near Piney Fork, and the United States Coal Co., one of the largest operations in the State, is situated at Bradley, Ohio.

The property of the Jefferson Coal Co., consists of about 7,000 acres of coal land. The vein worked here is the No. 8 Pittsburgh Seam and is about four and one-half feet thick. The productive capacity of each mine is about 1,000 tons per day. More than one-half of the product of this company's plant is machine mined.

The plant in operation is modern in every respect, electricity as a power medium being in use to the largest practical extent.

BRILLIANT SHAFT.

Location, Brilliant, Ohio. Transportation, C. & P. R. R. Operated by the Pan Handle Coal Co., Cleveland, Ohio. R. T. Price, superintendent, Cleveland, Ohio. D. H. Thomas, mine foreman, Brilliant, Ohio. Is a shaft opening 266 feet deep, penetrating the No. 6 seam of coal, which is 4 feet thick. Two fans are in use as ventilating mediums. Forty miners and 20 day hands are employed. Seven visits were made during the year. December 19, 1903, I found the safety catches out of order, and the engine foundation very much impaired. I gave orders to have these repairs made at once. January 21, I was compelled to close down the mine on account of the management not obeying orders which I had given on my last visit. March 2, I found new safety catches had been put on, and the general improvements that I had ordered had been made, and the mine was in fair condition.

JEFFERSON NO. 1.

Is located at Piney Fork on the L. E. A. & W. R. R. Is operated by the Jefferson Coal Co., Cleveland, Ohio. John Simpson, superintendent, Piney Fork, Ohio; Richard Wilson, mine foreman, Piney Fork, Ohio. Is a drift opening to the No. 8 seam of coal, which is 5 feet thick. A fan is in use as a means of ventilation. One hundred and fifteen miners and 35 day hands are employed. Four inspections were made during the year. The coal is mined by electric power, and is hauled to the chutes by an electric motor. The mine was always found in good condition. The coal is of first class quality, and usually finds a ready market. Mr. Simpson, the superintendent, has a plan mapped out for each mine under his control so that the head of each depart-

ment knows exactly what is required of him, and everything is managed with the least possible friction.

JEFFERSON No. 2.

Location, Piney Fork, Ohio. Transportation, L. E. A. & W. R. R. Is operated by the Jefferson Coal Co., Cleveland, Ohio. John Simpson, superintendent, Piney Fork, Ohio; Wm. Wilson, mine foreman, Piney Fork, Ohio. Is a drift opening to the No. 8 seam of coal, which is 5 feet thick. A fan is used as a ventilating medium. About 190 miners and 50 day hands are employed. Four inspections were made during the year. The mine was always found in good condition. The coal is mined by electric chain machines, and is hauled to the chutes by an electric motor. The coal in this mine seems to be a little superior to that of the No. 1. It is shipped in great quantities to the lake, where it is used for both steam and domestic purposes.

JEFFERSON No. 3.

Is located three miles south of Piney Fork on the L. E. A. & W. R. R. Is operated by the Jefferson Coal Co., Cleveland, Ohio. John Simpson, superintendent, Piney Fork, Ohio; C. H. Vickers, mine foreman, Piney Fork, Ohio. Is a drift opening, penetrating the No. 8 seam of coal, which is about 5 feet thick. Forty-five miners and 15 day hands are employed. Three inspections were made during the year. The mine has been equipped with an electric plant, and promises to be one of the large mines in this section.

LA BELLE.

Location, Steubenville, Ohio. Transportation, C. & P. R. R., and the W. & L. E. R. R. Is operated by the La Belle Iron Works, Steubenville, Ohio. Superintendent, P. J. Harrigan, Steubenville, Ohio; A. Lafferty, mine foreman, Steubenville, Ohio. This is a shaft opening 200 feet deep, penetrating the No. 6 seam of coal, which is about 3 feet 6 inches in thickness. About 50 miners and 20 day hands were employed. Six inspections were made during the year. This is an old mine which was known for a number of years as the "Jefferson." About twenty years ago water broke into one of the headings leading under the river. The management thought the break came from the river, and abandoned the mine. In the meantime the plant was sold to the La Belle Iron Works. Four years ago the company commenced to clean out the old shaft. A great deal of trouble was met while the work was in progress. Gas was found in great quantities, causing a number of men to be burned, some fatally. The progress of this work was very slow and dangerous, and very expensive, but at present the

equipment is second to none in the State, and the mine is in fair condition. A greater part of the workings of this mine is in West Virginia, and comes under the jurisdiction of the Mining Department of that State.

X L.

This mine is located at Bergholz on the L. E. A. & W. R. R. Is operated by the X L. Coal Co., Bergholz, Ohio. John Kirk, superintendent, Bergholz, Ohio; John Peterson, mine foreman, Bergholz, Ohio. This is a slope opening of 100 feet, penetrating the No. 6 A seam of coal, which is 3 feet thick. A fan is used as a means of ventilation. Thirty miners and 8 day hands are employed. Five inspections were made during the year. This mine is equipped with an electric plant. The coal is of an excellent quality, and is in great demand for domestic use.

PLUM RUN No. 1, No. 2, No. 3, No. 4.

These mines are located six miles north of Rush Run Station, on a branch of the C. & P. R. R. Operated by the United States Coal Co., Cleveland, Ohio. H. A. Rowyer, superintendent, Smithfield, Ohio; Wm. Gibson, mine foreman, Smithfield, Ohio. These are drift openings to the No. 8 seam of coal, which is five feet thick. A fan is in use as a ventilating medium at the No. 4 mine. The other openings are using fire baskets temporarily. Ninety miners and 37 day hands are employed. One inspection was made during the year. These are new mines just being opened. The coal will all be hauled to one tipple. An electric plant is being installed with the latest improved machinery and devices for handling coal.

UNITED STATES MINES.

These mines are located five miles northeast of Dillonville, Ohio, on the L. E. A. & W. R. R., and a branch of the W. & L. E. R. R., and are operated by the United States Coal Co., Cleveland, Ohio. General Superintendent, M. W. Willard, Cleveland, Ohio; Thos. Stiff, superintendent, Bradley, Ohio. There are ten drift openings at this plant which penetrate the No. 8 seam of coal. Fans are in use as ventilating mediums. About 400 miners and 80 day hands are employed. These openings are divided into sections. No. 1, No. 2, No. 3, and No. 4 are called Section No. 1, Wm. Platt is mine foreman. This section is ventilated by an electric fan. No. 5 and No. 6 are called Section No. 2, and have James Abercrombie as mine foreman. This section is also ventilated by an electric fan. No. 7 and No. 8 are ventilated by an electric fan, and are called Section No. 3. James Fox is mine foreman. Section No. 4 includes the No. 9 and the No. 10 openings, and is ventilated by an electric fan. Charles Sheets is mine foreman. Addresses of all mine foremen, Bradley, Ohio. This is the largest plant in the No. 8

coal, and possibly as large as any in the State. The mines are not fully developed yet. The plant is equipped to handle a large tonnage. The coal is of a superior quality, and is used for both steam and domestic purposes.

HIGH SHAFT.

Is located at Steubenville, and has no railroad connections. Is operated by the Steubenville Mining Co., Steubenville, Ohio. Wm. Smurthwait, superintendent, Steubenville, Ohio; Matthew Casner, mine foreman, Steubenville, Ohio. Is a shaft opening 227 feet deep, penetrating the No. 6 seam of coal, which is about four feet in thickness. Two fans are used for ventilating the mine. Twenty-five miners and 20 day hands are employed. Three inspections were made during the year. This is possibly the oldest mine in operation in the State, having been opened in the years 1857 and 1858, and has been in continuous operation ever since. A few years ago an electric plant was installed to mine and haul the coal. The coal is now being hauled about three miles by an electric motor. The entire output of this mine is consumed in the city of Steubenville for domestic purposes.

BLOCK HOUSE RUN.

This mine is located two miles south of Brilliant on a branch of the C. & P. R. R., and is owned by the Brilliant Coal Co., Brilliant, Ohio. John Eagan, superintendent and mine foreman, Brilliant, Ohio. Is a drift opening to the No. 8 seam of coal, which is about 5 feet thick. Three visits were made to this mine, which found it idle each time. The mine was opened up about one year ago, but on account of some cause unknown to me, has been idle since March.

ROLLING MILL NO. 2.

Is located at Irondale, Ohio, on the C. & P. R. R., and is operated by the Irondale Coal Co., Irondale, Ohio. J. A. Wood, superintendent, Irondale, Ohio; Samuel Madison, mine foreman, Irondale, Ohio. This is a drift opening to the No. 7 seam of coal, which varies in thickness from 4 to 6 feet. A furnace is in use as a means of ventilation. Thirty miners and 10 day hands are employed. Three inspections were made during the year. An electric plant was installed the fore part of the year. The plan of the management was to open up the mine and work it on a large scale, but this was not carried out, and the mine has been idle the most of the year, and has finally been suspended indefinitely.

DIAMOND No. 3.

Is located at Yellow Creek on the main line of the C. & P. R. R., and is operated by W. E. Smith, Wellsville, Ohio. R. J. Borden, superintendent and mine foreman, Wellsville, Ohio. Is a drift opening to the No. 6 seam of coal, which is about 3 feet 4 inches in thickness. A fan is now in use as a means of ventilation. Thirty-five miners and 10 day hands are employed. Two inspections were made during the year. February 17, I found the ventilation was very deficient on account of a poorly erected furnace. I suggested that the furnace be torn out, and a fan erected. This was done in a short time, and gives general satisfaction.

SMALL COAL MINES IN JEFFERSON COUNTY.

Name of Mine.	Name of Owner or Operator.	Name and P. O. Address of Supt.	No. of Miners.	No. of Day Hands.	Kind of Opening.	Mode of Ventilation.	No. of Seam.	Thickness of Vein.	Plan of Working Mine.	Kind of Haulage.
Taylor	W. Taylor & Son.....	W. Taylor, Bergholz...	10	4	Drift ...	Furnace	6	3 $\frac{1}{4}$	Single	Mule.
Great Western.....	Amer. Sewer Pipe Co.	Jas. Duke, Toronto...	15	5	Drift ...	Furnace	R.	2 $\frac{1}{4}$	Single	Man.
Nicholson	Toronto Fine Clay Co.	C. W. Bishop, Steubenville	12	4	Drift ...	Furnace	R.	3	Single	Mule.
Calumet	Amer. Sewer Pipe Co.	S. McAdoo, Calumet.	10	4	Drift ...	Furnace	R.	3	Single	Mule.
Forest City	Amer. Sewer Pipe Co.	W. B. Francy, Toronto	14	4	Drift ...	Furnace	R.	3	Single	Mule.
East Ohio	E. Ohio Sewer Pipe Co.	W. E. Williams, Iron-dale	12	3	Drift ...	Furnace	R.	3	Single	Mule.
Hill Top	Amer. Sewer Pipe Co.	S. McAdoo, Calumet.	5	1	Drift ...	Natural	7	3 $\frac{1}{4}$	Single	Mule.

CLAY MINES IN JEFFERSON COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	No. Men Employed.	P. O. Address.
Calumet	Slope	American Sewer Pipe Co.	15	Toronto.
Forest City	Slope	American Sewer Pipe Co.	15	Toronto.
Great Western	Slope	American Sewer Pipe Co.	14	Toronto.
Myers	Slope	Myers Clay Co.	12	Toronto.
East Ohio	Shaft	E. Ohio Sewer Pipe Co.	15	Irondale.
Porter No. 1.....	Drift	Standard Brick Co.	6	Irondale.
Porter No. 2.....	Drift	Standard Brick Co.	9	Irondale.
Union	Drift	Minor Fire Brick Co. ...	6	Empire.
Lacy	Drift	Adolph Pritchaw	4	Irondale.
Little Grant	Shaft	Toronto Fire Brick Co. .	8	Toronto.

MAHONING COUNTY COAL MINES.

NORTH LIMA.

Location, 10 miles south of Youngstown. Transportation, Youngstown & Southern Electric R. R. Operated by the Y. & S. E. R. R. Co., Youngstown, O. Superintendent, E. G. Biddison, Youngstown, O.; Joseph Jones mine foreman, Youngstown, O. Is a shaft opening, 66 feet deep, penetrating the No. 3-A seam of coal, which is 2 feet 3 inches in thickness. A fan is in use as a ventilating medium. The mine is worked partly on the double entry system. Three visits were made during the year, and on my last visit I found 48 miners and 14 day hands employed. The coal is used principally for domestic purposes, and it is stated that it is of very superior quality. A vein of fireclay lies directly under this coal. It is the intention of the company to put in a plant to manufacture block, tile and brick. When this is done the fireclay that they are taking out now will be utilized.

FAIRVIEW No. 2.

Location, Washingtonville, O. Transportation, Erie R. R. Operated by the Ohio Coal & Clay Co., Cleveland, O. H. D. Hileman superintendent, Cleveland, O.; mine foreman, Daniel McGrath, Leetonia, O. This is a slope opening of 300 feet, penetrating the No. 3 seam of coal, which is from 2½ to 3 feet in thickness. A fan is used as a means of ventilation; 65 miners and 20 day hands are employed. Five inspections were made during the year. The mine is usually found in fair condition, taking into consideration the system used in mining the coal. The mine is worked on the single entry plan, which necessitates doors on each room on one side of the entry. The coal is shot from the solid. No mining whatever is done, and it is nothing out of the ordinary for the mine foreman to go in the mine in the morning and find from two to six doors blown to pieces from the shots fired the previous evening. It is almost impossible to have the necessary ventilation under the present system of mining this coal.

McKINLEY SHAFT.

Location, Beloit, O. Transportation, Pa. R. R. Operated by the McKinley Coal Co., Salem, O. Superintendent, W. H. Dunn, Salem, O.; John Roebush mine foreman, Beloit, O. Is a shaft opening 60 feet deep, penetrating the No. 5 seam of coal, which varies from 3 feet to 4 feet in thickness. A fan is used for ventilating purposes; 15 miners and 5 day hands are employed. Two visits were made during the year. The coal is of an excellent quality and finds a ready market for domestic use. This mine was idle for several months while owned by the Lake Erie & Southern Coal Co., but was sold to what is known as the McKinley Coal Co., and resumed operation about November 10.

SMALL COAL MINES IN MAHONING COUNTY.

Name of Mine.	Name of Owner or Operator.	Name and P. O. Address of Supt.	No. of Miners.	No. of Day Hands.	Kind of Opening.	Mode of Ventilation.	No. of Seam.	Thickness of Vein.	Plan of Working Mine.	Kind of Haulage.
McDonald	McDonald Bros	J. McDonald, N. Lima.	8	2	Shaft ...	Steam ex	3a	2' 4"	Single	Mule.
Howell	Allison & Bashaw	W. Allison, Salem....	8	2	Slope ...	Fan	3	3	Single	Mule.
Greenmeyer	Zimmerman & Orr	F. Zimmerman, Salem.	7	2	Shaft ...	Fan	3	3	Single	Mule.
Barber	G. A. Barber	Geo. Barber, Beloit....	9	2	Shaft ...	Furnace	5	3	Single	Mule.

TRUMBULL COUNTY.

WITCH HAZEL.

Location, lies northeast of Youngstown, on the L. S. & M. S. R. R. Operated by the Witch Hazel Coal Co., Youngstown, O. John Goad superintendent and mine boss, Coalburg, O. This is an old mine; has been in operation over 40 years; the mine was idle almost the entire year, but resumed operation a short time ago and from 15 to 20 miners and 4 day hands are employed.

TUSCARAWAS COUNTY COAL MINES.

SOMERS NO. 1, OR THOMPSON RUN (WEST).

Is located 3 miles south of Sherrods-ville, on a branch of the W. & L. E. R. R. Operated by the Somers Mining Co., Cleveland, O. Wm. Maloney superintendent, Sherrods-ville; Henry Maloney mine foreman, Sherrods-ville, O. Is a drift opening, to the No. 7 seam of coal, which varies in thickness from 4 to 6 feet. A fan is used as a ventilating medium. About 90 miners and 40 day hands find employment. Five visits were made to this mine during the year. On April 28 the ventilation was found deficient, owing to an air-way being closed up by falls. I suggested that they drive a room through from the seventeenth entry to a room driven from the eighteenth entry. May 27 I found the mine in much better condition. Improvements had been made in the way of repairing doors, brattices, etc. The coal is mined by electrical machinery, and hauled to the chutes by a twelve-ton motor.

SOMERS NO. 1, OR THOMPSON RUN (EAST).

The location of this mine is the same as the Thompson Run (West), is owned by the same company and is under the same management. It is a drift opening to the No. 7 seam of coal, which varies from 4 to 6 feet in thickness. A fan is used as a means of ventilation; 5 miners and 2 day hands are employed. The solid coal in the mine has been exhausted. Nothing is left but pillar work. The mine will be finished up and abandoned in the near future.

SEVENTH DISTRICT.

W. H. MILLER.

MEDINA, STARK, SUMMIT, WAYNE AND HOLMES.

HON. GEORGE HARRISON, *Chief Inspector of Mines, Columbus, O.*

DEAR SIR:— I have the honor to submit to you a report of the inspections of mines in the Seventh Mining District, embracing the counties of Holmes, Medina, Ottawa, Portage, Stark, Summit and Wayne, as made by me during the period of time beginning November 16, 1903, and ending December 31, 1904; also a short review of conditions generally, as they prevailed in this district.

During the period covered by this report, unfortunately for the miners, work on the whole has not been as prosperous as the previous year; while some of the mines worked steadily throughout the year, yet a majority of mines that were in operation half time during 1903 have worked little or none during the summer of 1904. Again some of the mines were a little tardy in beginning operations for the fall and winter trade, which was probably due to the following reasons: Lack of trade during the summer and fall of 1904 was an indirect reaction and result of the strike of the Masters and Pilots on the Great Lakes, as this traffic is one of the prime factors in the prosperity of the coal interests, although other districts have suffered more from this one cause than this district, Ohio operators being unable to compete in upper lake ports against the cheap coal producing districts, while others hold the product of their mines for purely domestic trade and make no effort to secure business during the summer months. Whether these are the true causes for the falling off in work, the fact remains the same. The price of mining agreed on by the joint conference of operators and miners at Indianapolis has been maintained throughout the year. The work in this district has been less than one-half time.

Four (4) new mines have been opened up in the district during the year which give promise of becoming large producers, and in all probability will install electrical mining machinery.

The principal improvements for the year are as follows: Airshafts, sixteen (16); fans, six (6); furnaces, two (2); stairways, seven (7); speaking-tubes, one (1); telephones, one (1), and safety catches, seven (7).

No strikes or lockouts of any importance occurred. It is with pleasure that I report the occurrence of no mine fires, gas explosions or powder explosions in my district during the time covered by this report. However, I deeply regret to report six (6) fatalities, a detailed description of which has been filed with the department.

The coal territory in this district is being rapidly taken up, and developed to the extent which the condition of the market warrants.

You will agree with me when I make the statement that accidents are more frequently the result of carelessness than otherwise. Accidents can be reduced to a much lower rate by mine workers exercising greater care for personal safety and a higher regard for the lives of their fellow-work-

ers. In short, a compliance of the operators with the admirable provisions of the present mining laws, together with the mine workers themselves realizing the peril of their vocation, constitute the most effective means for reducing accidents to the minimum.

I believe that the condition of the miners in the State of Ohio to-day, as regards to wages, hours of labor, ventilation and sanitary conditions, will compare favorably with any other industry in the State, and, owing to the settled financial conditions now prevailing and the increased activity in the industries upon which the coal trade is dependent to a great extent and taking the present outlook from a general business standpoint as a criterion, I bespeak for the miners of Ohio a period of prosperity during the coming year.

On December 19, 1904, I was called into Tuscarawas county, and, in company with yourself and District Inspector W. H. Turner, inspected the following mines: Wainwright Nos. 4 and 6, Mullin, Goshen Central, East Goshen No. 1, East Goshen No. 2, Goshen Hill, Goshen Shaft, West Goshen, Beaver Dam Nos. 1 and 2, Central Valley Nos. 1 and 2, and Somerdale No. 1 and Reeves Nos. 1 and 2. They are equipped with modern facilities for the production of coal at a minimum cost. They reflect much credit on the management and W. H. Turner, the Inspector in whose district they are located. This visit was a pleasant, as well as instructive one, and was very highly appreciated by myself.

In retrospect, I desire to say that it has been very gratifying to me to note the harmonious relations that have existed between the miners, operators and myself, and acknowledge that it has been a great aid to me in the proper execution of my duties. It is with much pleasure that I comment upon the promptness with which operators complied with suggestions made by me for the better improvement of their mines and am indeed grateful to the miners for their attitude denoting fraternal fellowship.

In conclusion, permit me to express my sincere appreciation for the courtesies extended by your predecessor, Mr. E. G. Biddison, and yourself, and my grateful thanks for excellent advice and timely suggestions which I assure you have been to me an aid invaluable.

Respectfully submitted,

W. H. MILLER, R. F. D. No. 1,
Massillon, Ohio.

Inspector Seventh Mining District.

MEDINA COUNTY.

WAGONER.

Located near Wadsworth, O., on the Erie R. R., and operated by the Card & Prosser Coal Co., Cleveland, O. O. V. Dibble, superintendent, Wadsworth, O., and G. C. White, same place, is mine boss. Slope opening, 361 feet in length entering the No. 1 seam of coal, which is four feet in thickness. Exhaust steam is used as a ventilating medium; 44 miners and 16 day men employed. Four inspections made. February 25 mine found in operation after a suspension of nearly nine months. Considerable trouble was being experienced with black damp caused by the air shaft being blocked with ice. May 17 found the black damp had disappeared. July 21 and November 15 mine in fair condition.

CARD No. 5.

Situated near Wadsworth, on the Erie R. R., and operated by the same Company as the Wagoner mine, same superintendent and A. W. Smith, Wadsworth, Ohio, mine boss. Slope opening, 120 feet long into the No. 1 seam of coal, which is from 4 to 5 feet thick, being ventilated by exhaust steam and employing 26 miners and 7 day hands. Inspected five times. March 2, May 18, July 20, October 27 and December 27. This mine was kept in fair condition throughout the year.

WHALEN.

Located near Wadsworth, O., on the Erie R. R., and operated by the same Company as the above mines, same superintendent and A. Davis, mine foreman, Wadsworth, O. Slope opening, 300 feet in length entering the No. 1 seam of coal, which is four feet thick. Exhaust steam is the ventilating power; 41 miners and 15 day hands employed. Four inspections made during the year. March 4, May 19, July 19, and October 28. Found that they were commencing to remove the pillars and with but few exceptions this mine was kept in fair condition.

EASTER.

Operated by the same Company was worked out and abandoned during the year.

JAMES No. 4.

Situated near Wadsworth, O., and is a domestic mine operated by James & Paynter Coal Co., Wadsworth, O. Thomas James has full charge, Wadsworth, O. This is a slope opening, 180 feet in length to

the No. 1 seam of coal, which is from 4 to 5 feet thick. Exhaust steam is used as a ventilating medium; 12 miners and 3 day men are employed. Four visits made. March 3, mine in fair condition; May 18, visited and found idle; July 20, October 27, mine found in first class condition.

JAMES No. 5.

Located near Wadsworth, O., on the Erie R. R., and operated by the same company as the No. 4 mine. Thomas James has entire supervision. New shaft opening, 93 feet deep entering the No. 1 seam of coal, which is $4\frac{1}{2}$ feet thick. Exhaust steam is the ventilating power, and 12 miners and 3 day men are employed. Inspected once on December 27 and found 12 men engaged in making the bottom. Ordered gates placed on top of the shaft, and also a cover placed on the cage.

WAYNE No. 2.

Situated near Wadsworth, O., on the Erie R. R., and operated by the Ohio Salt Co., Wadsworth, O. S. Evans, superintendent, Wadsworth, O., and John Evans, same place is mine boss. Slope opening, 175 feet in length entering the No. 1 seam of coal, which is from $3\frac{1}{2}$ to $4\frac{1}{2}$ feet thick, and ventilated by a furnace; 21 miners and 7 day men employed. Visited four times during the year. May 20 found the mine in good condition. July 21 visited and found idle; October 28 learned that a furnace of an abandoned mine had been put in use by making connections with same which furnished an abundance of ventilation. October 31 called to investigate fatal accident to George Harper.

HAMILTON.

Located near Wadsworth, O., and is a domestic mine operated by the Hamilton Coal Co., Wadsworth, O. George Hamilton, Wadsworth, O., has full charge. Drift opening, to the No. 1 seam, which is four feet thick, ventilated by a furnace and employs 12 miners and 3 day men. Inspected once on October 27 and found in fair condition.

KLONDIKE.

Situated near Wadsworth, O., on the Erie R. R., and operated by the Hutchinson Coal Co., Wadsworth, O. John Hutchinson, superintendent, Wadsworth, O., and John McLany, same place is mine foreman. Slope 150 feet long, No. 1 seam, $3\frac{1}{2}$ to 4 feet in thickness, furnace ventilation, and employs 9 miners and 3 day men. One inspection made on October 28 and found in good condition.

OTTAWA COUNTY.

NORTH MINE.

Located near Gypsum, O., on the L. S. & M. S. R. R., and operated by United States Gypsum Co., Chicago, Illinois. E. J. Hughes, Gypsum, Ohio, has entire charge. Drift opening, penetrating the gypsum seam, which is from 5 to 6 feet thick, has natural ventilation and employs 42 miners and 4 day men. One inspection made during the year on September 20. With but few exceptions the mine was in fair condition.

SOUTHEAST.

Situated near Gypsum and operated by the same company as the North Mine, and is in charge of E. J. Hughes, Gypsum, O. Drift opening to the gypsum seam, from 4½ to 6 feet thick, natural ventilation and employs 45 miners and 2 day men. Inspected once September 20 and found in good condition.

LEA.

Located near Gypsum, O., and operated by the same company as the above mines. Shaft mine, 50 feet in depth penetrating the gypsum seam, which is six feet thick. Exhaust steam is used as a mode of ventilation, and employs 9 miners and 2 day hands. Inspected once September 20 and found that the air shaft had been sunk fifty (50) feet deeper making it 100 feet to a second seam of gypsum which is 18 feet in thickness. Found the ventilation deficient caused by the return not being large enough. This seam gives off a sulphuric acid gas which affected the eyes of the miners, and the company was notified that unless a second opening was made and the ventilation sufficient to render harmless this gas the mine could not be worked. I have since been informed through the company that the second opening has been completed.

PORT CLINTON.

Remained suspended throughout the year.

PORTAGE COUNTY.

HUTSON No. 4.

Located near Deerfield, O., on the L. E. A. & W. R. R., and operated by the Hutson Coal Co., Cleveland, O. T. J. Williams, superintendent, Lloyd, O., and J. P. Williams, mine foreman, Deerfield, O. Shaft opening, 214 feet deep to the No. 1 or Palmyra Block seam of coal,

which is $3\frac{1}{2}$ feet thick and of excellent quality, ventilated by a fan and employs 81 miners and 32 day men. Five inspections made. November 25, February 17, and June 9. Found quite an improvement on the main haulage by the bottom being taken up and retimbering the main entries. August 9 and November 11 mine found in first class condition.

HUTSON No. 7.

Situated near Lloyd, O., and operated by the same company as the No. 4 and under the same officials. Shaft, 165 feet deep to the No. 1 seam of coal $3\frac{1}{2}$ feet in thickness, and of excellent quality, fan ventilation and employs 26 miners and 14 day men. Two inspections made. August 10 and November 10 mine found in good condition.

HUTSON No. 6.

Was worked out and abandoned during the year.

MULLIN.

Located near Deerfield, O., on the L. E. A. & W. R. R., and operated by the South Palmyra Coal Co., Cleveland, O. John S. Davis, Deerfield, O., has full charge. Shaft opening, to the No. 1 seam of coal, 225 feet deep. The coal is $3\frac{1}{2}$ feet thick at this point. Exhaust steam is used as a ventilating power; 31 miners and 17 day men employed. Visited six times during the year. November 24 and February 16 and June 10 found in good condition. June 27 called to this mine to investigate the fatal accident resulting in the death of Frank Kale. August 10 and November 10 found that Ingersoll punching machines had been installed. This mine was kept in lawful condition throughout the year.

STARK COUNTY.

MINGLEWOOD No. 1.

Located near North Lawrence, Ohio, on the P. Ft. W. & C. R. R. and W. & L. E., and operated by the Massillon Coal Mining Co., Massillon, Ohio. Wm. Baumgardner, superintendent, Massillon, Ohio, and Wm. Moffett, mine foreman, North Lawrence, Ohio. Shaft 208 feet deep, entering the No. 1 seam of coal which is from 4 to 5 feet thick, fan ventilation, and employs 51 miners and 27 day men. Six inspections made. December 23, 1903, mine in fair condition. February 26, called to investigate fatal accident resulting in the death of George Legg. March 16, and June 7, learned that the mine was not working steady, and the fan not in use at night which caused the ventilation to be de-

ficient the following day. Suggested that the fan be kept in use. September 8, and December 2, mine in fair condition for pillar work.

MINGLEWOOD No. 2.

Situated near North Lawrence, Ohio, on the same railroad and managed by the same company as the No. 1 mine, with Joseph Ellis as mine foreman. Shaft 200 feet in depth, penetrating the No. 1 seam, which is 4 feet thick, ventilated by a fan and employs 74 miners and 41 day hands. Five inspections made during the year. December 21, 1903, March 24, June 24, September 26, and December 6, 1904, and with few exceptions found in fair condition.

NEW GREENVILLE No. 3.

Located near East Greenville, Ohio, on the W. & L. E. R. R., and operated by the Massillon Coal Mining Co., Massillon, Ohio. Wm. Crookson, superintendent, Massillon, Ohio, and M. English, mine boss, of the same place. Shaft 260 feet deep, entering the No. 1 seam, which is 5 feet thick, ventilated by means of a fan, employing 65 miners and 36 day hands. Visited six times. November 20, mine found in fair condition. December 29, called to test scales and found them accurate. April 20, visited and found idle. April 21, and August 12, mine in good condition. November 3, 1904, found Jeffrey Chain Machines and Ingersoll Punching Machines in use; also a rope haulage installed.

WARWICK No. 4.

Worked out and abandoned during the year.

WARWICK No. 5.

Situated three miles south of Greenville, Ohio, on the W. & L. E. R. R., and operated by the Massillon Coal Mining Co., Massillon, Ohio. Wm. Baumgardner, superintendent, Massillon, Ohio, and Daniel Heimbach, mine boss, of the same place. Shaft 207 feet in depth to the No. 1 seam, which is 4 feet thick, fan ventilation and employs 34 miners and 18 day men. Visited eight times. November 27, 1903, in good condition; January 8, called by General Manager Hornickle to make arrangements to construct a dam between the No. 4 and No. 5 mines. February 24, investigated fatal accident of John Fothergill and son Charles. April 9, and August 3, fair condition. September 7, called to examine cages and test safety catches by the Committee, found the safety catches in good working order, and requested new frames for cages. November 4, found the old cages replaced with new ones. December 9, called by Committee and District President to test scales and found them weighing correctly.

CENTRAL No. 7.

Located near Brookfield, Ohio, on the W. & L. E. R. R., and operated by the Massillon Coal Mining Co., Massillon, Ohio, same superintendent, and Patrick Henry as mine foreman, Massillon, Ohio. Shaft 262 feet deep, No. 1 seam of coal, 5 feet thick, fan ventilation and employs 43 miners and 21 day hands. Six visits made. December 24, 1903, in good condition; March 10, found idle; April 26, July 15, former suggestions complied with. October 20, and November 15, found the ventilation deficient in three rooms caused by air course being blocked; ordered same cleaned out.

STANWOOD No. 8.

Situated near Stanwood, Ohio, on the B. & O. R. R. and operated by the Massillon Coal Mining Co., Massillon, Ohio. Wm. Baumgardner is superintendent, and Wm. Pollock, mine boss, North Lawrence, Ohio. Shaft 200 feet deep to the No. 1 seam which is from 4 to 6 feet thick, ventilated by a fan and employs 42 miners and 19 day men. Visited six times. December 14, 1903, found idle; again visited on December 30, 1903; April 15, July 5, September 29, and December 12, 1904. With few exceptions mine was kept in fair condition throughout the year.

NORTH MASSILLON No. 9.

Located near Jackson Center, Ohio, on the B. & O. and P. Ft. W. & C. R. R., and operated by the Massillon Coal Mining Co., Massillon, Ohio. Wm. Crookson, Massillon, Ohio, is superintendent, and J. Hodgson, mine foreman, Canal Fulton, Ohio. This is a shaft opening 150 feet deep to the No. 1 seam, which is about 4 feet thick, ventilated by a fan and employs 83 miners and 33 day men. Four inspections were made. February 29, June 14, September 22, and November 28, and found in fair condition on each inspection.

GEISE No. 13.

Situated near Stanwood, Ohio, on the W. & L. E. R. R., and operated by the Massillon Coal Mining Co., Massillon, Ohio. Wm. Baumgardner, Jr., Massillon, Ohio, is mine boss. Shaft opening 200 feet deep, entering the No. 1 seam, which is 5 feet in thickness. A fan is used as a ventilating medium. Fourteen machine miners, 16 pick miners and 18 day men are employed. Two visits were made. January 4, found the ventilation deficient, and on April 11, it was suspended for the remainder of the year.

No. 17.

Located near West Brookfield, Ohio, on the W. & L. E. R. R., and operated by the Massillon Coal Mining Co., Massillon, Ohio. Wm.

Crookson, superintendent, Massillon, Ohio, and Ed English, mine boss, of the same place. Shaft 225 feet deep, No. 1 seam, 5 feet thick, fan ventilation, employing 46 miners and 21 day men. Visited four times. February 22, learned that the mine was to be suspended until August. September 30, when visited found that Jeffrey Machine, Ingersoll Puncher and the Chandler machines were in operation. November 3, called to test scales. December 15, mine in good condition.

No. 18.

Remained suspended throughout the year.

ELM RUN No. 1.

Situated two miles south of Massillon, on the W. & L. E. R. R., and operate by Davis & Somers Coal Co., Canton, Ohio. J. L. Greene, superintendent, Massillon, Ohio; M. Davis, mine boss, of the same place. Shaft 190 feet deep, No. 1 seam, which is from 3½ to 4 feet thick, fan ventilation and employs 49 miners and 17 day hands. Four visits were made, February 1, May 3, September 9, and November 16. On each inspection the mine was found in lawful condition.

ELM RUN No. 2.

Located near West Brookfield, Ohio, on the same railroad, operated by the same company and managed by the same persons as the No. 1 mine. Shaft 116 feet deep, No. 1 seam, which is 4 feet thick, fan ventilation and employs 33 miners and 13 day men. Five inspections made. November 19, March 1, June 1, September 7, and November 23, and found that the requirements of the mining law had been complied with.

ELM RUN No. 3.

Situated near Elton, Ohio, on the W. & L. E. R. R., and operated by same company as the No. 1 and 2 mines. Lewis Brenkamp has entire charge. Shaft 156 feet deep, No. 1 seam, 4 to 5 feet thick, fan ventilation, and employs 31 miners and 13 day men. Inspected four times, and with few exceptions the mine was kept in good condition throughout the year. Ingersoll punching machines have been installed. Date of inspections as follows: December 17, 1903; March 18, June 29, and October 24, 1904.

ELM RUN No. 4.

Worked out and abandoned during the year.

ELM RUN No. 5:

Located near Elton, and operated by the same company as the other Elm Run mines. Lewis Brenkamp, superintendent, Navarre, Ohio, and Stephen Horner, mine foreman, same place. Shaft opening 100 feet deep to the No. 1 seam of coal, which is from $3\frac{1}{2}$ to 5 feet in thickness, ventilated by means of a fan and employs 44 miners and 15 day hands. Inspected four times during the year. December 1, 1903, April 25, July 25, and November 2, 1904. The ventilation was found deficient, caused by a main door having no attendant, and requested that a trapper be placed at this door.

ELM RUN No. 6.

Situated near Greenville, Ohio, on the W. & L. E. R. R., and operated by same company as the above mines. H. Williams, Canal Fulton, Ohio, has entire supervision. Shaft 257 feet deep, penetrating the No. 1 seam of coal which is 4 feet thick, ventilated by means of a fan and employs 40 miners and 12 day men. Seven visits made during the year. December 11, 1903, visited and found suspended indefinitely. January 5, called to test the scales by the Committee and found correct; inspected the mine and found in fair condition. Visited April 6, July 14, and September 28. Found the air shaft completed, fan erected and stairway built. October 21, called by the Committee to examine safety catches, tested same and found them in good working order. December 30, 1904, visited and found idle. Inspected mine and found in compliance with mining law.

BRAMLEY.

Situated near North Lawrence, Ohio, on the P. Ft. W. & C. R. R., and operated by the Cleveland, Massillon Coal Co., Cleveland, Ohio. J. P. Jones, North Lawrence, Ohio, has full charge. Slope opening 330 feet in length entering the No. 1 seam of coal which is about $3\frac{1}{2}$ feet thick, ventilated by a fan and employs 48 miners and 13 day men. Inspected four times during the year. December 4, 1903, March 8, September 27, 1904, learned that they had been suspended for nearly five months; found the stoppings in poor condition, caused by water being pumped out of the mine; suggested that they be repaired. December 8, 1904, found in an improved condition.

CRESCENT.

Located near Paris, Ohio, on the L. E. A. & W. R. R., and operated by the Crescent Coal Co., Alliance, Ohio. Hugh B. Evans, Paris, Ohio, has entire supervision. Slope 215 feet in depth, penetrating the No. 5 seam of coal, which is 3 feet in thickness, fan ventilation, and employing 39 miners and 9 day hands. Five visits made. November 23, 1903, February 18, 1904, June 8, mine found in fair condition. Aug-

use 8, found the mine suspended for an indefinite period. November 9, found the ventilation deficient caused by a squeeze on the return air course; they were driving a place for a new return which will take but a short time; when completed conditions will be improved.

SOUTH MASSILLON.

Situated near Navarre, Ohio, on the W. & L. E. R. R., and operated by the South Massillon Coal Co., Massillon, Ohio. Henry Leahy, Massillon, Ohio, has entire supervision. Shaft opening, 160 feet deep, No. 1 seam, which is 5 feet in thickness at this point. A fan is in use as a ventilating medium. Thirty-eight machine miners, 16 cutters and 18 day men employed. Six inspections made during the year. December 7, 1903; February 11, 1904, April 18, July 11, October 6, and December 13. This mine was kept in good condition throughout the year. The Ingersoll punching machine, and the Chandelers machine have been installed in this mine.

Pocock No. 3.

Located near East Greenville, O., on the B. & O. and W. & L. E. R. R., and operated by the Pocock Coal Co., Massillon, O. C. A. Kouth, Massillon, O., has entire charge. Shaft, 245 feet in depth, penetrating the No. 1 seam of coal, which is 5 feet in thickness, ventilated by a fan, and employs 43 machine miners, 41 pick miners and 32 day men. Visited six times during the year. January 6, April 20, May 9, mine found in good condition. July 1 called to the mine to test scales, which were found to be weighing correctly. August 17 and November 17 mine found in compliance with the law. The Ingersoll punching machine has been installed in this mine.

CARR.

Situated near Alliance, O., and is a domestic mine, A. C. Dustman, of Alliance, O., being the lessee, who is in entire supervision. Shaft opening, 50 feet deep, entering the No. 6 seam of coal, which is 3 feet in thickness, ventilated by a furnace, and employs 15 miners and 4 day men. Three inspections made. December 15, 1903, ordered the cage repaired. March 22, 1904, and November 22, mine found in fair condition.

DAVIS No. 2.

Located near Alliance, O., and operated by Eli Bros., Alliance, O. Ed Eli has entire supervision. Shaft opening, 35 feet in depth, to the No. 6 seam of coal, which is in thickness 3 feet. A furnace is the ventilating medium, and 12 miners and 3 day men are employed. Visited three times. December 15, 1903, March 22, 1904, mine in fair condition. November 22 ventilation deficient, caused by the furnace not being kept

in use. Suggested that the furnace be kept in use while the men were working.

EAST MASSILLON.

Suspended throughout the year.

McGINTY.

Situated three miles east of Louisville, O., on the P., Ft. W. & C. R. R., and operated by Broombach & Kime, Louisville, O. Ed Jones, Louisville, O., has entire charge. Drift opening, entering the No. 6 seam of coal, which is 3 feet thick, ventilated by a furnace; 33 miners and 10 day men employed here. Four visits made during the year. February 2, 1904, found in fair condition; June 16, ventilation deficient. September 21 and November 25 mine found in good condition.

CANTON HOLLOW BLOCK.

Situated near Canton, on the W. & L. E. R. R., and operated by the Canton Hollow Block Co., Canton, O. O. R. Foster, superintendent, Canton, O., and Wm. Brown, same place, is mine boss. Drift opening, entering the No. 4 seam of coal, which is $4\frac{1}{2}$ feet in thickness. A furnace is the ventilating medium, and 22 miners and 5 day men find employment here. Four visits made. February 3, April 12, requested several sets of timbers placed in the drift. July 12, former orders complied with. October 10, mine in fair condition.

HESS.

Located near Navarre, O., on the Ohio Canal, and operated by the Hess Coal Co., Massillon, O. Fred Hess has entire supervision. Shaft opening, 42 feet deep, to the No. 1 seam of coal, which is $3\frac{1}{2}$ feet thick. Exhaust steam is the ventilating power, and 10 miners and 4 day men employed. Two inspections made during the year. February 11 found the ventilation deficient, and ordered a door placed and two break-throughs closed. December 5, found my former orders complied with; requested a gate placed on the top of the shaft and cover on the cage, and also a new pinion wheel on engine.

PIGEON RUN.

Worked out, and abandoned during the year.

CAMP.

Located near Greentown, O., on the B. & O. R. R., and operated by H. B. Camp, Akron, O., who is superintendent, and N. Weaver is mine foreman, Inland, O. Drift opening, to the No. 4 seam of coal, which is 5 feet thick, including a strata of stone in the center. This mine has nat-

ural ventilation. Eleven (11) miners and 2 day men employed. Three inspections made, March 9, June 28 and October 19. With few exceptions, the mine was kept in fair condition.

SUMMIT HILL.

Situated near Greentown, O., on the B. & O. R. R., and operated by L. E. Smith, Greentown, O., who is also superintendent. Peter Dearoff, mine foreman, Greentown, O. Drift, to the No. 4 seam, which is 5 feet in thickness at this point, including a strata of stone. A furnace is used as the ventilating medium; 13 miners and 2 day men find employment here. Visited three times during the year. March 9, in fair condition. June 28, visited and found suspended indefinitely. October 19, found the ventilation deficient, caused by the furnace not being in use, and suggested that the furnace be kept in use while the mine was working. Ordered several sets of timbers replaced in the drift.

INDIAN RUN.

Located four miles south of Osnaburg, O., on the W. & L. E. R. R., and operated by Steiner Coal Co., Canton, O. David Carel, Osnaburg, O., has full supervision. Drift, No. 6 seam, 3 feet thick, furnace ventilation, and employs 39 miners and 15 day men. Three inspections made, April 13, July 7 and October 12. Mine kept in fair condition throughout the year.

NATIONAL FIRE PROOFING No. 1.

Located near Osnaburg, O., on the W. & L. E. R. R., and operated by the National Fire Proofing Co., Canton, O. Jno. Murley superintendent, Canton, O., and Albert Hale, same place, is mine foreman. Drift, No. 6 seam, 3 feet in thickness, ventilated by a furnace, and employs 21 miners and 8 day men. Inspected three times during the year, April 14, July 8 and October 12; the mine was kept in compliance with the mining law.

NATIONAL F. P. No. 2.

Located near Waynesburg, O., on the P., Ft. W. & C. R. R., and operated by the same company as the No. 1. D. S. Griffith, Waynesburg, O., has entire supervision. Slope, 158 feet long, entering the No. 6 seam of coal, which is 3 feet thick, fan ventilation, employing 15 miners and 5 day hands. One inspection made, and found in good condition. This mine has been suspended the greater part of the year.

PLEASANT VALLEY.

Situated near Paris, O., on the L. E., A. & W. R. R., and operated by the Pleasant Valley Coal Co., Alliance, O. Jno. Suffell, Paris, O., has

full charge. Slope, 80 feet in length, to the No. 6 seam, which is 3 feet thick, furnace ventilation, and employs 17 miners and 4 day hands. Visited three times. June 8 found them retimbering the slope, which was needed. August 8, made inspection of mine and found it in fair condition. November 9, found the mine suspended indefinitely.

LAHMILLER NO. 1.

Located near Waco, O., and is a domestic mine, operated by J. G. Lahmiller, Canton, O., who has entire charge. Drift opening, to the No. 6 seam of coal, which is 3 feet thick, ventilated by a furnace, and employs 15 miners and 3 day men. Visited once, August 22, and found in good condition.

FOX No. 12.

Is located near Navarre, O., on the W. & L. E. R. R., and operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner is superintendent and Wm. Llewellyn, Massillon, O., is mine foreman. Shaft opening, 200 feet deep, to the No. 1 seam, which is 5 feet thick, ventilated by a fan, and employs 49 machine miners, 42 pick miners and 28 day men. Visited six times, and four inspections made. December 7, 1903, visited and found idle. December 17, in fair condition; April 11, June 13 and August 16 found the ventilation deficient in the No. 2 entry on the south side, and ordered two doors put up and brattice repaired. November 21, found former orders complied with and mine in good condition.

CANAL FULTON No. 15.

Worked out and abandoned during the year.

OAKWOOD No. 16.

Is situated near Milport, O., on the B. & O. R. R., and P, Ft. W. & C. R. R., and operated by the Massillon Coal Mining Co., Massillon, O. Wm. Crookston superintendent, Massillon, O., and Jno. La Viers, mine foreman, Canal Fulton, O. Shaft opening, 100 feet deep, entering the No. 1 seam, which is 4 feet thick, ventilated by a fan, and employs 31 miners and 15 day men. Six visits were made during the year. November 30, 1903, visited and found idle. December 9, 1903; March 14, June 2, found in good condition. August 19 and November 18 found them removing the pillars.

SUNNYSIDE.

Situated near North Industry, O., and is a domestic mine, owned by Jno. Plaskett, who is superintendent, North Industry, O. Drift, to the No. 6 seam of coal, which is 3 feet thick, ventilated by furnace, and employs 14 miners and 2 day men. One inspection, made on August 23.

Ordered three break-throughs closed and a door put up; aside from this the mine was in fair condition.

NORTH BERLIN.

Located near North Berlin, O., and is a domestic mine, operated by August Smith, North Berlin, O. F. Smith has full charge, North Berlin, O. Shaft opening, 40 feet in depth, to the No. 4 seam, which is 5 feet thick, including a strata of stone. Exhaust steam is used as a ventilating power; 12 miners and 4 day men employed. One inspection made. October 19 the mine was in compliance with the mining law.

SUMMIT COUNTY.

TURKEY FOOT.

Situated near Manchester, Ohio, on the C. A. & C. R. R., and operated by the Brewster Coal Co., Akron, Ohio. John White, Nimisila, O., has entire supervision. Shaft opening, 200 feet deep entering the No. 1 seam of coal, which is four feet thick, fan ventilation and employs 50 miners and 22 day men. Five visits made. December 10, 1903, the ventilation was deficient in the second east entry owing to the brattices and stoppings being neglected. Suggested that the mine foreman give his attention to same. March 30, June 20, September 23 and November 29, visited and found in an improved condition.

BEECHWOOD MASSILLON.

Located near Manchester, O., on the C. A. & C. R. R., and operated by the Beechwood Massillon Coal Co., Cleveland, O. George Graze, superintendent, Massillon, O. Jos. Burger, mine foreman, Nimsila, O. Shaft opening, penetrating the No. 1 seam, which is from $4\frac{1}{2}$ to 5 feet thick. Exhaust steam is used as a ventilating power; 40 miners and 19 day men employed. This is a new mine and is opening up one of the largest coal territories in the district. It is the intention of the company to operate this mine on a large scale and will be equipped with electric machinery in the near future. Five visits made. April 4, June 20, mine was in good condition. September 6, called to this mine to investigate the death of Chas. Dettry; October 14, and December 7, the mine was in compliance with the mining law.

GERRARD NO. 1.

Located near Cottage Grove, on the B. & O. R. R., and operated by the White Oak Coal Co., Cleveland, O. Thos. Williams, superin-

tendent, Akron, O., and Wm. Jones, mine boss, Myersville, Ohio. Shaft 106 feet in depth penetrating the No. 1 or Massillon seam of coal, being from 4 to 5 feet thick at this point. Exhaust steam is the ventilating power; 40 miners and 10 day men employed. This is a new mine which is opening up a large territory of coal, it being the intention of the company to operate it on a large scale. Five inspections made. January 7, April 7, mine in good condition. June 22 ordered an air shaft sunk and gates placed on top of the shaft. August 18, and November 7, former orders complied with and mine in good condition.

HAMETOWN.

Situated near Hametown, O., and is a domestic mine, operated by the Hametown Coal Co., Barberton, O. J. D. Jones, Barberton, has full charge. Slope opening, 318 feet in length entering the No. 1 seam of coal, which is four feet thick. Exhaust steam is used as a means of ventilation; 25 miners and 7 day men are employed. One inspection made October 26 ventilation deficient in the west entry. Fifteen feet has yet to be driven and when completed will place the mine in good condition.

WAYNE COUNTY.

DALTON No. 14.

Located near Dalton, O., on the W. & L. E. R. R., and operated by the Massillon Coal Mining Co., Massillon, Ohio. Wm. Baumgardner, superintendent, Massillon, O., and Wm. Baumgardner, Jr., mine foreman, Dalton, O. Shaft, 125 feet deep entering the No. 1 seam of coal which varies in thickness from 4 to 5 feet. Exhaust steam is used as a means of ventilation; 45 miners and 16 day men employed here. Four inspections made. December 18, '03, visited and again on March 17, 1904, when I learned that the mine was to be suspended indefinitely. October 7, found in operation after a suspension of nearly six months. Requested several breakthroughs closed and a check door put up. December 16, '04 mine in good condition.

DOYLESTOWN No. 1.

Situated near Doylestown, O., on the Erie R. R., and operated by the Massillon Navarre Coal Co., Canton, O. Albert Morrow, Clinton, O., has full charge. Shaft, 144 feet deep to the No. 1 seam, which is five feet in thickness at this point. Exhaust steam is the ventilating power and 32 miners and 12 day men employed here. New mine, it being the intention of the company to operate it on a large scale. Six visits made. January 19, and February 28, mine in good condition.

May 10 called to investigate the accident of John Burewn, who was caught between a loaded car and the pillar at the bottom of the shaft. Visited again on July 18, October 26, and December 28, and found the air shaft sunk, and stairway built and the mine in good condition.

NEW CHIPPEWA.

Worked out and abandoned during the year.

PORTER.

Located near Doylestown, O., on the Erie R. R., and operated by the Card & Prosser Coal Co., Cleveland, O. O. V. Dibble, superintendent Wadsworth, O., and R. Lee, mine foreman, Doylestown, O. Shaft, 162 feet deep, penetrating the No. 1, which is here four feet in thickness, ventilated by exhaust steam, and employs 27 miners and 10 day men. Inspected twice. November 14 found 20 miners employed in driving entries. December 28, learned that the force had been increased to 32 miners, and the superintendent was notified that a second opening would have to be commenced, which was agreed to. Mine found in good condition.

STEWART.

Worked out and abandoned during the year.

WEST LEBANON NO. 1.

Situated near West Lebanon, on the C. A. & C. R. R., and operated by the West Lebanon Coal Co., Cleveland, O. Wm. Empfield, superintendent, New Philadelphia, O., and George Kay, mine foreman, West Lebanon, O. Shaft opening, 102 feet deep entering the No. 1 seam of coal, which is from 4 to 5 feet thick. A fan is the ventilating medium, and 61 miners and 19 day hands employed. Three visits made. February 8, mine idle; July 27, ventilation deficient on the east side of the mine owing to the breakthroughs being neglected. October 17, mine in good condition.

WEST LEBANON NO. 2.

Located near the Number One and operated by the same company same superintendent and Ed. Penman, mine foreman, New Philadelphia, O. Slope opening, 350 feet long entering the No. 1 seam, which is 5 feet thick. Exhaust steam is used as a ventilating power; 35 miners and 13 day men employed. Inspected twice during the year. October 17, and December 29, mine found in fair condition. Ordered a second opening. This is a large territory of coal, it being the intention of the company to operate it on a large scale.

HOLMES COUNAY.

MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	No. of Men Employed.	P. O. Address.
Horn	Drift	John Horn	7	Millersburg.
Uhl	Drift	Uhl & Fortune.....	5	Killbuck.
Bilderback	Drift	D. M. Bilderback.....	9	Millersburg.
Jorden	Drift	G. A. Jorden.....	6	Millersburg.
Brooks	Drift	Carpenter & Brooks....	9	Millersburg.
Quillen	Drift	Pleasant Grove Coal Co.	10	Millersburg.
Mast	Drift	M. Marques	12	Homesville.
Lookout	Drift	W. H. Gindelsberger....	4	Millersburg.
Pardy	Drift	M. Marques	8	Homesville.

STARK COUNTY.

MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	No. of Men Employed.	P. O. Address.
Sippo	Drift	Worhoust Co	9	Massillon.
Hipp No. 1.....	Drift	M. S. F. & B. Co.....	9	Massillon.
Hipp No. 2.....	Drift	M. S. F. & B. Co.....	8	Massillon.
Chestnut Hill	Drift	Priest & Riece.....	4	Crystal Springs.
Whittacre No. 5.....	Drift	W. F. P. Co.....	10	Waynesburg.
Whittacre No. 6.....	Drift	W. F. P. Co.....	8	Waynesburg.
Sherwood	Shaft	Livers & Smith.....	8	Massillon.
Lahmiller No. 2.....	Drift	J. G. Lahmiller.....	10	Canton.
C. S. C.	Drift	C. S. C. Co.....	6	Mineral City.
Buckeye	Slope	Buckeye Coal Co.....	7	Canal Fulton.
Rice No. 2.....	Drift	E. Rice	10	Osnaburg.
East End	Drift	Zuber & Wolf.....	11	Osnaburg.
Bowen	Drift	D. Plotner	9	Osnaburg.
N. F. P.	Drift	N. F. P. Co.....	7	Canton.
Lowe	Shaft	Thomas Lowe	7	Alliance.

WAYNE COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	No. of Men Employed.	P. O. Address.
Colonial	Slope	Colonial Coal Co.....	9	Doylestown.
Mobile	Drift	W. P. Ries.....	4	Doylestown.
California	Drift	Seiberling & Miller.....	8	Doylestown.

IMPROVEMENTS.

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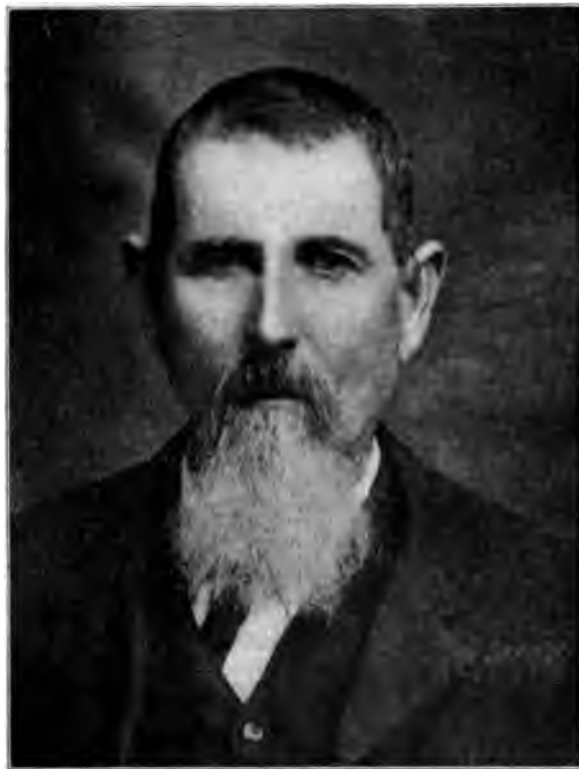
PERMANENT IMPROVEMENTS.

Two hundred and fifty-seven permanent improvements were reported made in the Seven Mining Districts of the State during the year 1904, which was sixty-eight less than were made during 1903, and are as follows: Furnaces, 31; fans, 54; airshafts, 63; second openings, 55; safety catches, 21; stairways, 18; speaking tubes, 12, and fire baskets, 3.

As second openings constitute a very important factor in mine improvements we desire to call the attention of those engaged in the mining industry to what appears to be a misconception or misconstruction of the spirit and intent of the proper interpretation of the wording of the Statutes in their provision for second openings, especially in shaft mines, and this feature in some localities has been very generally and wantonly disregarded. Considering the dullness of trade during the summer months, and not desiring to enforce any radical changes that would probably interfere with the operation of mines and the interests of both operators and miners during the steady work in the fall and towards the close of the year, we have not been exacting in that particular except where there was imminent danger, but just as soon as the weather will permit the coming year the law of second openings will in all cases be strictly enforced, or shaft mines will be closed and drift or slope openings reduced to the minimum number of men permitted by law.

The picture following this article is that of Wm. Savage, of Crooksville, Ohio, Perry county, who was one of four men entombed in the Blue Rock Mine, Muskingum county. This mine had but one opening, a drift on the bank of the Muskingum River. On Friday, April 25, 1856, the mouth of the mine caved in by a sudden breaking or sliding of the hill and four men were entombed for fourteen days without food or means of subsistence only a little sulphur water. After all hope of rescue had vanished, they calmly huddled together in the dark dungeon of the mine and lay down to die, a sacrifice in favor of second openings, but the will of providence made the efforts of their fellow miners successful and they were all rescued alive on May 8, 1856, or fourteen days after their entombment and all restored to health. Mr. Savage is the only survivor and being unable to work, earns a little money from the sale of a small pamphlet or booklet giving a short history and account of the accident and rescue of the party, the price of which is 25c each and is such an interesting story that every miner's family ought to read it.

In District No. 1, composed of the counties of Jackson, Vinton, Gallia, Lawrence and Scioto, and in charge of Thos. Waters from June until the close of the year, five (5) permanent improvements were made.



Wm. Savage, one of four men entombed in the Blue Rock Mine, Muskingum County, Ohio, for fourteen days, from Friday, April 25, to May 8, 1856. Caused by a cave-in of the mouth of the mine which was due to a sudden breaking or sliding of the hill, and no Second Opening available as a means of escape.

D. H. Williams, who has supervision of the Second District, reported 59 improvements, from the counties of Athens, Meigs, Washington and Noble, 47 of which are credited to Athens, where 14 fans were installed.

Hocking, Perry, Muskingum and Morgan, comprising the Third Mining District, and in charge of L. W. Hull from June until the close of the year, reported 8 improvements. The mines of a portion of this district were on a strike a large portion of the year, which probably accounts for the small number of improvements, as work was not resumed until late in the fall.

District No. 4, in charge of Inspector Thos. McGough, made 56 improvements, and is comprised of the counties of Monroe, Belmont, Harrison and a portion of Jefferson. Thirty-four (34) of these were made in Belmont county, 16 in Jefferson. Jefferson reported 10 second openings made and Belmont 16.

District Inspector W. H. Turner, in charge of the counties of Tuscarawas, Noble, Coshocton and Guernsey, which constitutes the Fifth Mining District, reported 53 improvements, 26 of which were made in Tuscarawas, 10 in Coshocton, Noble 9, and Guernsey 8.

In the Sixth Mining District, which is composed of the counties of Carroll, Columbiana, Mahoning, Trumbull and Portage, and supervised by Jas. P. Davis, reported 35 improvements. Jefferson county also constitutes a portion of this district, where 22 improvements were made.

W. H. Miller, Inspector of the Seventh Mining District, composed of the counties of Stark, Medina, Summit, Wayne and Holmes, made 41 permanent improvements, 24 of which are credited to Stark.

A number of these improvements have been made on the suggestion of the District Inspectors on their accustomed visits to the mines in their respective districts, which, in their judgment, were necessary for the betterment of the mines and for the safety and comfort of the persons employed therein.

Very little opposition is encountered in having these suggestions carried out, and the relation between the Inspectors and operators is, on the whole, most harmonious and pleasant. This makes the work of the Inspectors more agreeable and the result of such relation is most gratifying and the spirit manifested most commendable.

TABLE SHOWING THE NUMBER AND CHARACTER OF THE PERMANENT IMPROVEMENTS MADE IN THE MINES OF THE STATE FROM NOVEMBER 15, 1903 TO DECEMBER 31, 1904, INCLUSIVE.

Name of District Inspector.	Furnaces.	Fans.	Air Shafts.	Second Openings.	Safety Catches.	Stairways.	Speaking Tubes.	Ventilating Baskets.	Totals.
Williams	8	15	10	14	1	5	5	1	59
Waters	3	1	1	1	1	1	1	1	5
Hull	2	4	1	1	1	1	1	1	8
McGough	4	12	10	28	1	1	1	2	56
Turner	1	8	13	10	8	4	3	1	53
Davis	4	9	11	2	4	2	3	1	35
Miler	3	5	18	1	7	7	1	1	41
Totals	31	54	63	55	21	18	12	3	257

TABLE SHOWING THE NUMBER AND CHARACTER OF THE PERMANENT IMPROVEMENTS MADE IN THE MINES OF THE STATE BY COUNTIES DURING THE YEAR OF 1904.

Counties.	Furnaces.	Fans.	Air Shafts.	Second Openings.	Safety Catches.	Stairways.	Speaking Tubes.	Ventilating Baskets.	Totals.
Athens	6	14	7	8	1	5	5	1	47
Belmont	2	8	7	16	1	1	1	1	34
Carroll	1	1	1	1	1	1	1	1	7
Columbiana	1	1	1	1	1	1	1	1	7
Coshocton	2	1	5	2	1	1	1	1	10
Harrison	1	2	1	1	1	1	1	1	6
Hocking	2	2	1	1	1	1	1	1	6
Holmes	1	1	2	2	1	1	1	1	6
Gallia	1	1	1	1	1	1	1	1	5
Guernsey	2	1	1	2	2	1	1	1	8
Jackson	1	1	1	1	1	1	1	1	2
Jefferson	2	8	9	11	2	2	2	2	38
Lawrence	2	1	1	1	1	1	1	1	2
Mahoning	1	2	1	1	1	1	1	1	4
Medina	1	1	1	1	1	1	1	1	1
Meigs	1	1	2	5	1	1	1	1	9
Noble	1	1	2	2	4	2	1	1	9
Ottawa	1	1	1	1	1	1	1	1	1
Perry	1	2	1	1	1	1	1	1	2
Portage	1	1	1	1	1	1	1	1	4
Stark	3	4	10	1	2	4	1	1	24
Summit	1	1	2	2	2	1	1	1	4
Tuscarawas	3	6	8	4	2	1	2	1	26
Wayne	1	2	2	1	1	2	1	1	5
Vinton	1	1	1	1	1	1	1	1	1
Totals	31	54	63	55	21	18	12	3	257

TABLE SHOWING THE NUMBER AND CHARACTER OF PERMANENT IMPROVEMENTS MADE IN THE MINES OF THE STATE FROM 1884 TO 1904 INCLUSIVE.

Years.	Furnaces.	Fans.	Air Shafts.	Second Openings.	Safety Catches.	Stairways.	Speaking Tubes.	Ventilating Baskets.	Totals.
1884	43	10							53
1885	45	19	45		13				122
1886	13	6	22	10		12			63
1887	39	9	50	7		8			113
1888	43	4	52	17	13	12			141
1889	42	13	57	21	7	3	3		146
1890	57	20	66	46	8	11	4		212
1891	53	17	55	26	19	19	5		194
1892	37	26	65	27	13	7	4	2	181
1893	77	35	131	67	16	19	5	4	354
1894	55	18	106	60	7	11	3	9	269
1895	66	17	105	60	9	11	3	13	284
1896	56	21	93	81	5	7	3	14	280
1897	40	22	75	44	4	7	3	9	204
1898	44	17	73	45	7	11	1	15	213
1899	36	25	60	45	11	13	7	3	200
1900	24	27	69	31	1	9	1	8	170
1901	40	45	66	31	11	5	7	3	208
1902	50	59	98	37	21	20	10	8	303
1903	56	71	94	49	17	19	10	9	325
1904	31	54	63	55	21	18	12	3	257
Totals	947	535	1,445	759	203	222	81	101	4,331

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SCALES AND MINE MAPS.

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SCALE TESTS.

In familiarizing ourselves with the various duties and demands made upon the time and energy of the District Mine Inspectors, and devising means whereby the best results of their labors might be obtained with the least possible expenditure of same, to say nothing of the expense incurred, our attention has been very forcibly called to that branch of the department which relates to the testing of weigh scales and the inroad which it has made upon the time of the Inspectors, which, from the number of tests made and the results obtained, clearly demonstrates that the greater portion of the work is superfluous and were desirous, so far as this department was concerned, to adopt some means which would lessen the number of calls for scale tests. With this object in view, on September 7, 1904, we addressed a personal communication to the secretaries of the Coal Operators' Associations in the different mining localities of the state on the subject of scale testing (the full text of which will be found in the Special Rulings and Policies advocated by the department on important subjects connected with the coal industry), asking them to bring the matter up before their members, in which it was cited that a great deal of time and inconvenience was experienced by the Inspectors being called upon to settle disputes arising as to the accuracy or otherwise of weigh scales, and from delay caused by their inability to at all times respond to calls promptly often caused mines to be idle, and advising each operator to procure two (2) fifty (50) pound, stamped test-weights, to be kept at the weigh-house to be used by the weigh-master and check-weighman, which could also be used by the Mine Inspector on his visits to the mines. In this way it was believed that a great deal of time and trouble regarding this matter could be avoided.

In response to this request of the department, we were solicited to communicate with the several manufacturers of test-weights and ascertain at what least possible cost the necessary weights could be procured. Responses were received from the most reliable scale makers about the last of the year, and will be taken up and submitted to the secretaries of the Coal Operators' Associations, to be acted upon as they see fit. It is to be hoped that there will be a general response to this request of the department, as both alike would be benefited by such a plan being put in operation. We hope to be able in our next annual report to have some permanent and satisfactory system of testing scales adopted and reported at that time.

As compared with the year 1903, 42 sets more of scales were tested during the year 1904, a total of 230 having been reported by the District Inspectors. Of this number, 208 were found correct and 22 incorrect,

i. e., to say 90 per cent of the total number of scale tests were found accurate in their weighing, clearly demonstrating that some system of testing scales should be inaugurated and is absolutely necessary in order to settle disputes arising as to their accuracy or otherwise, and that the practice of continually calling Inspectors to mines for this purpose is useless and the fears entertained regarding their accuracy entirely groundless and without foundation in the greater number of cases.

Athens county reported 53 sets tested, 46 correct and 7 incorrect; Stark county 36, all were found correct with the exception of two instances; Belmont 22, all correct excepting one; Jefferson likewise; Jackson 16, 14 of which were found accurate; Guernsey 13, 11 of which were correct. The remaining counties reported a number of tests in like proportion, but the foregoing counties reported the largest number.

An expert was called to mine No. 252, owned by the Continental Coal Co., located in Athens county, to adjust and overhaul the scales, as they were not weighing properly; also at the Ideal mine, Guernsey county, owned by the Wills Creek Coal Co.; the same was true of the Imperial mine, Guernsey county, owned by the Imperial Mining Co., the scales refusing to return correct weights.

A strike occurred at the Wade and Morgan Run mines, located in Coshocton county, in May, and continued throughout the year, the miners demanding that the coal should be weighed on Hopper scales instead of railroad scales, which were in use at these mines.

TABLE SHOWING THE NUMBER OF SCALES TESTED, AND RESULT OF THE EXAMINATION FROM 1887 TO DECEMBER 31, 1904, INCLUSIVE.

Years.	Number of sets of scales tested.	Number of sets found correct.	Number of sets found incorrect.	Remarks.
1887.....	74	.....	.....
1888.....	55	41	14	
1889.....	48	33	15	
1890.....	59	46	13	
1891.....	61	37	24	
1892.....	86	62	24	8 in favor of company, 6 in favor of miners.
1893.....	120	81	39	12 in favor of company, 3 in favor of miners.
1894.....	64	37	27	15 in favor of company, others not known.
1895.....	96	65	31	15 in favor of company, 14 in favor of miners.
1896.....	93	65	28	5 against miner, 1 against operator.
1897.....	77	59	18	3 against miner, 3 against operator.
1898.....	99	82	17	4 against miner, 1 against operator.
1899.....	112	93	19	
1900.....	131	115	16	3 against miner, 1 against operator.
1901.....	139	115	24	
1902.....	154	131	23	
1903.....	188	157	31	
1904.....	230	208	22	
Totals..	1,886	.....	.....

DETAILED LIST OF SCALES TESTED FROM NOV. 15 TO DECEMBER 31, 1904.
ATHENS COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1903.				
December 2	No. 204	Continental Coal Co., Columbus, Ohio.....	D. H. Williams.....	(1) Set correct. ..
December 7	No. 37	McLeish Coal Co., Columbus, Ohio.....	"	(1) Set correct. ..
December 21	Imperial No. 1	Imperial Coal Co., Columbus, Ohio.....	"	(1) Set correct. ..
1904.				
May 10	No. 252	Continental Coal Co., Columbus, Ohio.....	"	(1) Set incorrect; requested expert scale man.
May 26	10 X	Sunday Creek Coal Co., Columbus, Ohio.....	"	(1) Set correct.
June 21	No. 281	Continental Coal Co., Columbus, Ohio.....	"	(1) Set correct.
June 27	No. 275	Continental Coal Co., Columbus, Ohio.....	"	(1) Set correct.
June 30	Imperial No. 1	Imperial Coal Co., Columbus, Ohio.....	"	(1) Set correct.
July 20	No. 205	Continental Coal Co., Columbus, Ohio.....	"	(1) Set correct.
July 21	Halbert	New York Coal Co., Columbus, Ohio.....	"	(1) Set correct.
July 27	Del Carbo	Hocking Mining Co., Athens, Ohio.....	"	(1) Set correct.
August 3	Wells	A. K. Wells, Kimberly, Ohio.....	"	(1) Set correct.
August 4	Imperial No. 1	Imperial Coal Co., Columbus, Ohio.....	"	(1) Set correct.
August 4	No. 5	New Pittsburgh Coal Co., Columbus, Ohio.....	"	(1) Set correct.
August 8	No. 311	Continental Coal Co., Columbus, Ohio.....	Lucius W. Hull.....	(1) Set correct.
August 9	10 X	Sunday Creek Coal Co., Columbus, Ohio.....	D. H. Williams.....	(1) Set incorrect.
August 11	No. 10	Sunday Creek Coal Co., Columbus, Ohio.....	"	(1) Set correct.
August 23	No. 31	McLeish Coal Co., Columbus, Ohio.....	"	(2) Sets correct.
August 24	No. 256	Continental Coal Co., Columbus, Ohio.....	"	(2) Sets correct.
August 31	Sedalia	Sedalia Coal Co., Glouster, Ohio.....	"	(1) Set accurate.
September 7	Schuler	Jacob Schuler	"	(1) Set correct.
September 8	Peacock	Peacock Coal Co., Amesville, Ohio.....	"	(1) Set correct.
September 9	Twin Vein	Twin Vein Coal Co., Broadwell, Ohio.....	"	(1) Set correct.
September 9	Broadwell	Federal Valley Coal Co., Marietta, Ohio.....	"	(1) Set correct.
September 9	Big Run	Gilliam-Minschall Coal Co., Columbus, O.	"	(1) Set correct.
September 20	No. 3	Juniper & Son, Nelsonville, Ohio.....	"	(1) Set correct.
September 21	Halbert	New York Coal Co., Columbus, Ohio.....	"	(1) Set correct.
September 22	No. 205	Continental Coal Co., Columbus, Ohio.....	"	(1) Set correct.

DETAILED LIST OF SCALES TESTED FROM NOV. 15, 1903 TO DECEMBER 31, 1904—Continued.

ATHENS COUNTY — Continued.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904.				
September 28	Nelsonville S. P.	Nelsonville Sewer Pipe Co., Nelsonville, O.	"	(1) Set correct.
September 28	No. 266	Continental Coal Co., Columbus, Ohio.....	"	(2) Sets correct.
September 30	Jobs No. 23	Hisylvania Coal Co., Trimble, Ohio.....	"	(1) Set correct.
October 10	No. 10	Sunday Creek Coal Co., Columbus, Ohio....	"	(2) Sets correct.
October 13	No. 252	Continental Coal Co., Columbus, Ohio.....	"	(2) Sets incorrect; requested expert scale man to re-pair them.
October 14	Sedalia	Sedalia Coal Co., Glouster, Ohio.....	"	(1) Set correct.
October 18	Luhrig No. 1	Luhrig Coal Co., Cincinnati, Ohio.....	"	(2) Sets correct.
October 18	Luhrig No. 3	Luhrig Coal Co., Cincinnati, Ohio.....	"	(2) Sets correct.
October 22	No. 252	Continental Coal Co., Columbus, Ohio.....	"	(1) Set incorrect.
November 2	No. 10 X	Sunday Creek Coal Co., Columbus, Ohio....	"	(1) Set correct.
November 3	No. 255	Continental Coal Co., Columbus, Ohio.....	"	(2) Sets correct.
November 5	No. 281	Continental Coal Co., Columbus, Ohio.....	"	(1) Set correct.
November 7	Jobs No. 23	Hisylvania Coal Co., Trimble, Ohio.....	"	(1) Set correct.
November 10	No. 203	Continental Coal Co., Columbus, Ohio.....	"	(1) Set correct.
November 22	No. 31	McLeish Coal Co., Columbus, Ohio.....	"	(1) Set correct.
December 15	Doanville No. 1	C. & H. C. & I. Co., Columbus, Ohio.....	"	(1) Set correct.
December 19	No. 10 X	Sunday Creek Coal Co., Columbus, Ohio....	"	(1) Set correct.
December 28	Wells	A. K. Wells, Kimberly, Ohio.....	"	(1) Set correct.

BELMONT COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1908.				
November 16	Empire No. 1.....	Empire Coal Co., Bellaire, Ohio.....	Thos. McGough.....	(1) Set correct.
November 19	Portland.....	Portland Coal Co., Wheeling, W. Va.....	".....	(1) Set correct.
December 14	Empire No. 6.....	Empire Coal Co., Bellaire, Ohio.....	".....	(1) Set incorrect.
December 21	Summit.....	Summit Coal Co., Cleveland, Ohio.....	".....	(1) Set correct.
1904.				
January 13	Boggs.....	Boggs Coal Co., Barton, Ohio.....	".....	(1) Set correct.
January 22	Crescent No. 3.....	Lorain Coal & Dock Co., Cleveland, Ohio..	".....	(2) Sets correct.
February 15	Schicks.....	J. Schick & Co., Bellaire, Ohio.....	".....	(1) Set correct.
April 25	Maple Hill.....	Youghiogheny-Ohio Coal Co., Cleveland, O.	".....	(2) Sets correct.
May 26	Neff No. 1.....	Neffs Mining Co., Neffs, Ohio.....	".....	(1) Set correct.
June 1	Lydia.....	Purseglove Coal Co., Maynard, Ohio.....	".....	(1) Set correct.
June 21	Empire No. 6.....	Empire Coal Co., Bellaire, Ohio.....	".....	(1) Set correct.
June 24	Moore's Run.....	Moore's Run Coal Co., Wheeling, W. Va....	".....	(1) Set correct.
August 1	Empire No. 1.....	Empire Coal Co., Bellaire, Ohio.....	".....	(1) Set correct.
August 10	Gaylord.....	Cleveland & Pittsburg Coal Co., Cleveland, Ohio.....	".....	(1) Set correct.
August 15	J. Schick & Co.....	J. Schick & Co., Bellaire, Ohio.....	".....	(1) Set correct.
October 3	Lansing.....	Lorain Coal & Dock Co., Columbus, Ohio..	".....	(1) Set correct.
October 5	Boggs.....	E. N. Boggs.....	".....	(1) Set correct.
October 6	Barton.....	Youghiogheny & Ohio Coal Co., Cleveland, Ohio.....	".....	(1) Set correct.
November 21	Columbia.....	Columbia Coal Co., Akron, Ohio.....	".....	(1) Set correct.
November 21	Cochran.....	W. A. Werner Coal Co., Zanesville, Ohio..	".....	(1) Set incorrect.
				(1) Set inaccurate.

DETAILED LIST OF SCALES TESTED FROM NOV. 15, 1903 TO DECEMBER 31, 1904—Continued.
CARROLL COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1903. December 4	Somers No. 3.....	Somers Mining Co., Cleveland, Ohio.....	Jas. P. Davis.....	(1) Set incorrect.
December 24	Beatty Clay	National Fire Proofing Co., Magnolia, Ohio.	"	(1) Set incorrect.
December 24	Beatty Coal	National Fire Proofing Co., Magnolia, Ohio.	"	(1) Set correct.
1904. February 4	Linden No. 6.....	Davis Railway Co., Canton, Ohio.....	"	(1) Set correct.
August 17	Somers No. 3.....	Somers Mining Co., Cleveland, Ohio.....	"	(1) Set correct.
August 23	Malvern Clay	Malvern Clay Co., Malvern, Ohio.....	"	(1) Set incorrect.
October 13	Somers No. 2.....	Somers Mining Co., Cleveland, Ohio.....	"	(1) Set incorrect.
December 24	Russell Hill	James Mining Co.....	"	(1) Set incorrect.

COLUMBIANA COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904. February 3	Prospect Hill	Prospect Hill Coal Co., E. Palestine, Ohio.	Jas. P. Davis.....	(1) Set correct.
September 25	Howell	Allison & Bashaw, Salem, Ohio.....	"	(1) Set correct.

COSHOCTON COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904. February 17 February 28	Cassingham No. 2..... Cassingham No. 3....	Coshocton Coal Co., Coshocton, Ohio..... Coshocton Coal Co., Coshocton, Ohio.....	W. H. Turner.....	(1) Set correct. (1) Set accurate.

GUERNSEY COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904. January 9	Ideal	Wills Creek Coal Co., Detroit, Mich.....	W. H. Turner.....	(1) Set inaccurate; scale man sent for.
March 21	Black Top	Somers Coal Co., Cleveland, Ohio.....	"	(1) Set accurate.
June 16	Ideal	Wills Creek Coal Co., Detroit, Mich.....	"	(2) Sets correct.
August 8	Ideal	Wills Creek Coal Co., Detroit, Mich.....	"	(2) Sets correct.
August 10	Central	Wills Creek Coal Co., Detroit, Mich.....	"	(2) Sets correct.
August 25	Imperial	Imperial Coal Co., Cleveland, Ohio.....	"	(1) Set inaccurate; expert requested.
September 12	Old Orchard	Morris Coal Co., Cleveland, Ohio.....	"	(1) Set accurate.
September 13	Hartford	Ellsworth Coal Co., Cleveland, Ohio.....	"	(1) Set accurate.
October 11	Detroit	Wills Creek Coal Co., Detroit, Mich.....	"	(2) Sets accurate.

DETAILED LIST OF SCALES TESTED FROM NOV. 15, 1903 TO DECEMBER 31, 1904—Continued.
HARRISON COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904. April 11	Roby No. 1.....	Roby Coal Co., Cleveland, Ohio.....	Thos. McGough....	(2) Sets correct.

HOCKING COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904. June 29	New Pittsburgh No. 6.	New Pittsburgh Coal Co., Columbus, Ohio..	L. W. Hull.....	(1) Set correct.

JACKSON COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904.				
April 15	Acorn Slope	Jones Coal Co., Jackson, Ohio.	E. S. Smith	Found correct.
April 16	Jones Slope	J. E. Jones Coal Co., Jackson, Ohio.	"	(1) Set correct.
May 20	Superior No. 10	Superior Coal Co., Jackson, Ohio.	"	(1) Set correct.
August 17	Fluhart No. 1	Fluhart Coal Co., Wellston, Ohio.	Thomas Waters	(2) Sets correct.
August 17	Fluhart No. 2	Fluhart Coal Co., Wellston, Ohio.	"	(2) Sets correct.
August 19	Cornelia No. 1	Cornelia Coal Co., Wellston, Ohio.	"	(1) Set correct.
August 27	Globe	Globe Iron Co., Jackson, Ohio.	"	(1) Set correct.
August 29	McKittrick	McKittrick Coal Co., Oak Hill, Ohio.	"	(1) Set correct.
August 30	Limestone	McKittrick Coal Co., Rempel, Ohio.	"	(1) Set incorrect.
October 14	Northern	Northern Coal Co., Jackson, Ohio.	"	(2) Sets correct.
October 24	Cornelia No. 2	Cornelia Coal Co., Wellston, Ohio.	"	(1) Set correct.
December 27	Hippel	Hippel Coal Co., Coalton, Ohio.	"	(1) Set correct.
December 29	Peerless	Peerless Coal Co., Columbus, Ohio.	"	(1) Set incorrect.

DETAILED LIST OF SCALES TESTED FROM NOV. 15, 1903 TO DECEMBER 31, 1904—Continued.
JEFFERSON COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1903. December 10	Long Run	W. & L. E. Coal Co., Cleveland, Ohio.....	Thos. McGough....	(2) Sets correct.
1904. February 16	Rolling Mill No. 2	Irondale Mining Co., Irondale, Ohio.....	Jas. P. Davis.....	(1) Set correct.
February 25	Zerbe	O. & P. Coal Co., Cleveland, Ohio.....	Thos. McGough....	(1) Set correct.
March 11	Dunglen	Morris & Posten, Cleveland, Ohio.....	Thos. McGough....	(1) Set correct.
April 13	Rush Run No. 1	Rush Run Coal Co., Cleveland, Ohio.....	Jas. P. Davis.....	(1) Set correct.
April 15	Rolling Mill No. 2	Irondale Mining Co., Irondale, Ohio.....	Jas. P. Davis.....	(1) Set correct.
May 18	X L	X L Coal Co., Bergholz, Ohio.....	Thos. McGough....	(1) Set correct.
June 27	Russell	Russell Coal Co., Steubenville, Ohio.....	Thos. McGough....	(1) Set correct.
July 12	Portland	Portland Coal Co., Wheeling, W. Va.....	Jas. P. Davis.....	(1) Set correct.
August 3	Florence	Witch Hazel Coal Co., Youngstown, Ohio..	Thos. McGough....	(1) Set correct.
August 27	Rush Run No. 1	Rush Run Coal Co., Cleveland, Ohio.....	Thos. McGough....	(1) Set correct.
September 22	O'Neil	O'Neil Coal Co., Herrick, Ohio.....	Jas. P. Davis.....	(1) Set correct.
October 4	West Pittsburgh	Eastern Ohio Coal Co., Cleveland, Ohio..	Jas. P. Davis.....	(1) Set correct.
October 5	X L	X L Coal Co., Cleveland, Ohio.....	Thos. McGough....	(1) Set correct.
October 11	Russell	Russell Coal Co., Steubenville, Ohio.....	Jas. P. Davis.....	(2) Sets correct.
October 18	Dillon No. 2	W. & L. E. Coal Mining Co., Cleveland, O.	Jas. P. Davis.....	(1) Set correct.
October 18	Florence	Witch Hazel Coal Co., Youngstown, Ohio..	Thos. McGough....	(1) Set incorrect.
October 20	Jefferson No. 3	Jefferson Coal Co., Cleveland, Ohio.....	Jas. P. Davis.....	(1) Set correct.
November 18	Kelly	Lewis Coal & Coke Co., Warrenton, Ohio..	Jas. P. Davis.....	(1) Set correct.
November 23	Zerbe	O. & P. Coal Co., Cleveland, Ohio.....	Jas. P. Davis.....	(1) Set correct.

MEDINA COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904. May 19	Easter	Silver Creek Coal Co., Wadsworth, Ohio..	W. H. Miller.....	(1) Set correct.
May 19	Whelan No. 2.....	Card & Prosser Coal Co., Cleveland, Ohio..	"	(1) Set correct.
May 20	Wagoner	Card & Prosser Coal Co., Cleveland, Ohio..	"	(1) Set correct.

MEIGS COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904. October 5	Rockville	Hisylvania Coal Co., Trimble, Ohio.....	D. H. Williams....	(1) Set correct.
October 7	Rolling Mill	Peacock Coal Co., Pomeroy, Ohio.....	"	(1) Set accurate.
October 24	Syracuse Slope	Sutton Coal Co., Syracuse, Ohio.....	"	(1) Set correct.
October 27	Pittsburgh	Pittsburg Mining Co., Minersville, Ohio..	"	(1) Set accurate.
November 17	Stevens	Maynard Coal Co., Columbus, Ohio.....	"	(1) Set correct.

MORGAN COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904. October 17	Black Diamond	Tropic Mining Co., Toledo, Ohio.....	L. W. Hull.....	(1) Set correct.
October 28	Carding	Carding Coal Co., Columbus, Ohio.....	"	(1) Set correct.

DETAILED LIST OF SCALES TESTED FROM NOV. 15, 1903 TO DECEMBER 31, 1904—Continued.
MUSKINGUM COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904.				
September 15	Raney	Elk Coal Co., Columbus, Ohio.....	D. H. Williams.....	(1) Set correct.
September 16	Siler	Siler Coal Co., McConnellsville, Ohio.....	"	(1) Set found correct.
September 16	Colonial	J. L. Reid Coal Co., Zanesville, Ohio.....	"	(1) Set correct.
September 21	Bristol No. 2	Bristol Coal Co., Newark, Ohio.....	Lucius W. Hull.....	(1) Set correct.
October 20	Maynard 16	Maynard Bros., Columbus, Ohio.....	"	(1) Set correct.
PERRY COUNTY.				
Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904.				
June 21	No. 8	Sunday Creek Coal Co., Columbus, Ohio..	L. W. Hull.....	(1) Set correct.
June 29	Cawthorn	New Pittsburg Coal Co., Columbus, Ohio..	"	(1) Set correct.
July 11	San Toy No. 1	New England Coal Co., Columbus, Ohio..	"	(1) Set correct.
August 4	Murray No. 5	New Pittsburg Coal Co., Columbus, Ohio..	"	(1) Set correct.
August 22	No. 21	Sunday Creek Coal Co., Columbus, Ohio..	"	(2) Sets correct.
August 23	Shawnee Valley	Maynard Bros	"	(1) Set correct.
August 25	Hazelton	Geo. C. Gibbs, New Straitsville, Ohio.....	"	(1) Set correct.
August 25	Rock Run No. 3	C. & H. C. & I. Co.	"	(2) Sets correct.
September 13	Keystone No. 4	Zanesville Coal Co., Zanesville, Ohio.....	D. H. Williams.....	(1) Set correct.
September 14	No. 321	Sunday Creek Coal Co., Columbus, Ohio..	"	(1) Set correct.
September 14	No. 322	Sunday Creek Coal Co., Columbus, Ohio..	"	(1) Set correct.
September 15	Simons	A. P. Simons, Redfield, Ohio.....	"	(1) Set correct.

STARK COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1903.				
November 19	Elm Run No. 2.....	Davis & Somers Coal Co., Canton, Ohio.....	W. H. Miller.....	(1) Set correct.
December 4	Bramley	Cleveland & Massillon Co., Cleveland, Ohio.	"	(2) Sets correct.
December 16	No. 17	Massillon Coal Mining Co., Massillon, Ohio.	"	(2) Sets correct.
1904.				
January 15	Elm Run No. 6.....	Davis & Somers Coal Co., Canton, Ohio....	"	(1) Set correct.
January 16	Sherwood	Livers & Smith, Massillon, Ohio.....	"	(2) Sets correct.
March 11	Canal Fulton No. 15..	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
May 23	Central No. 7.....	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
June 14	North Massillon No. 9	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
June 21	Oakwood No. 16.....	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
July 1	Pocock No. 3.....	Pocock Coal Co., Massillon, Ohio.....	"	(1) Set correct.
July 26	Elm Run No. 2.....	Davis & Somers Coal Co., Canton, Ohio.....	"	(1) Set correct.
August 15	Elm Run No. 3.....	Davis & Somers Coal Co., Canton, Ohio.....	"	(2) Sets correct; (1) set in-
				correct.
September 6	Buckeye	Buckeye Coal Co., Canal Fulton, Ohio.....	"	(1) Set correct.
September 7	Elm Run No. 2.....	Davis & Somers Coal Co., Canton, Ohio....	"	(1) Set correct.
September 7	Warwick No. 5.....	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
September 8	Minglewood No. 1....	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
September 9	Elm Run No. 1.....	Davis & Somers Coal Co., Canton, Ohio....	"	(1) Set correct.
September 26	Minglewood No. 2....	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
September 27	Bramley	Cleveland & Massillon Co., Cleveland, Ohio.	"	(1) Set correct.
September 28	Elm Run No. 6.....	Davis & Somers Coal Co., Canton, Ohio....	"	(1) Set correct.
September 29	Stanwood No. 8.....	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
October 6	South Massillon	South Massillon Coal Co., Massillon, Ohio.	"	(1) Set correct.
October 18	Hipp	Massillon Stone & Fire Brick Co., Massillon, Ohio	"	(1) Set correct.
October 20	Central No. 7.....	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
November 3	New Greenville No. 3.	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
November 9	Crescent	Crescent Coal Co., Alliance, Ohio.....	"	(1) Set incorrect.
November 17	Pocock No. 3.....	Pocock Coal Co., Massillon, Ohio.....	"	(1) Set correct.

DETAILED LIST OF SCALES TESTED FROM NOV. 15, 1903 TO DECEMBER 31, 1904—Continued.

STARK COUNTY — Concluded.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
November 23	Elm Run No. 2.....	Davis & Somers Coal Co., Canton, Ohio.....	"	(1) Set correct.
November 23	No. 17.....	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
December 9	Warwick No. 5.....	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.
December 12	Stanwood No. 8.....	Massillon Coal Mining Co., Massillon, Ohio.	"	(1) Set correct.

SUMMIT COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904.				
September 23	Turkey Foot.....	Brewster Coal Co., Akron, Ohio.....	W. H. Miller.....	(1) Set correct.
October 14	Beechwood Massillon..	Beechwood Massillon Coal Co., Massillon, O.	"	(2) Sets correct.
November 7	Girard No. 1.....	White Oak Coal Co., Cleveland, Ohio.....	"	(2) Sets correct.

TUSCARAWAS COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1903. December 23	Royal Coal No. 2.....	H. E. Cole, Midvale, Ohio.....	W. H. Turner.....	(1) Set accurate.
December 23	Royal Coal No. 3.....	H. E. Cole, Midvale, Ohio.....	"	(1) Set accurate.
May 27	Reeves No. 2.....	Reeves Coal Co., Canal Dover, Ohio.....	"	(1) Set correct.
June 8	Twin City	Dennison Coal Co., Dennison, Ohio.....	"	(1) Set correct.
July 18	West Goshen	Cleveland Tuscarawas Coal Co., Cleveland, Ohio	"	(1) Set correct.
July 20	East Goshen Coal No. 1.....	East Goshen Coal Co., Cleveland, Ohio.....	"	(1) Set accurate.
July 20	East Goshen No. 2.....	East Goshen Coal Co., Cleveland, Ohio.....	"	(1) Set correct.
July 20	Goshen Hill	Goshen Hill Coal Co., Cleveland, Ohio.....	"	(1) Set correct.
September 21	Twin City	Dennison Coal Co., Dennison, Ohio.....	"	(1) Set correct.
September 22	Royal Coal No. 3.....	H. E. Cole, Midvale, Ohio.....	"	(1) Set correct.
September 23	Indian Hill	Hiawatha Coal Co., Toledo, Ohio.....	"	(1) Set correct.
September 30	Laughlin	Mineral City Coal Co., Mineral City, Ohio.....	"	(1) Set correct.
October 28	East Goshen No. 1.....	East Goshen Coal Co., Cleveland, Ohio.....	"	(1) Set correct.

DETAILED LIST OF SCALES TESTED FROM NOV. 13, 1903 TO DECEMBER 31, 1904—Concluded.
VINTON COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904. May 5 June 6 October 17	Mohr & Minton..... Star No. 2..... Clarion	Mohr & Minton Coal Co., Columbus, Ohio.. Star Coal Co., McArthur, Ohio..... Gallia Mining Co., Clarion, Ohio.....	E. S. Smith..... Thomas Waters.... "	(1) Set correct. (1) Set incorrect. (1) Set incorrect.

WAYNE COUNTY.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1904. October 17 November 14 December 29	West Lebanon No. 1. Porter	West Lebanon Coal Co., Cleveland, Ohio.. Card & Prosser Coal Co., Cleveland, Ohio.. West Lebanon Coal Co., Cleveland, Ohio..	W. H. Miller..... "	(1) Set correct. (1) Set correct. (1) Set correct.

MINE MAPS.

Maps of mines showing the underground workings and the amount of excavation to the number of 341 were filed during the year of 1904. This was a gain of 48 over the year 1903, when 293 maps were filed with the Department.

Section 206 of the Revised Statutes requires that all mines having an excavation of over 15,000 cubic yards file a map with the Department. Each year finds the owners of coal mines more desirous of knowing the exact situation and excavation of their various properties, and most of the large companies have engineers constantly employed keeping their mines posted up to date. They are gradually falling into the habit of having this done once each year, and the Department is desirous to see that this part of the law is complied with. The importance of this work can only be realized by those who are in touch with the great number of requests that reach the Department from persons who are developing new coal lands in close proximity to old abandoned mines, or where one mine is approaching another in the same locality. Often-times the Department is the only means by which the various owners are enabled to learn the exact location of the different workings.

It should be noted in this connection also that some of the Mining Engineers in filing the maps with the Department fail to get the certificates which the law requires shall accompany each map. The name of the mine, the engineer, the date of extension, the surface lines, the north point, township and county in which mine is located, also are all very essential to a perfect map. From time to time the Department has issued special instructions on this point, and hopes by its continued efforts to bring this feature of the work up to the high standard which it should attain.

The total number of maps filed with the Department since the law was passed is 2,068. The total list of maps by counties in 1904 will be found on pages 389-393, also a table on page 388, which shows number of maps filed prior to 1884 and for each succeeding year since that time.

TABLE DESIGNED TO EXHIBIT THE NUMBER OF MAPS THAT HAVE BEEN FILED AS THEY OCCUR IN EACH COUNTY IN THE STATE FROM 1874 TO 1904, INCLUSIVE.

Counties.	Maps Filed.											Total number.
	Prior to 1884.	Prior to 1888.	Prior to 1894.	During 1897.	During 1898.	During 1899.	During 1900.	During 1901.	During 1902.	During 1903.	During 1904.	
Athens	10	...	28	23	10	20	13	27	30	29	37	227
Belmont	6	...	8	17	10	6	13	15	17	27	36	155
Carroll .....	...	2	5	...	6	2	2	2	6	7	7	29
Columbiana ..	12	1	8	23	6	3	9	16	17	18	11	124
Coshocton .....	...	...	3	5	4	1	4	7	5	8	7	44
Gallia .....	...	...	...	1	...	...	...	...	1	...	2	4
Guernsey	2	...	4	7	1	10	13	12	13	17	21	100
Harrison .....	...	...	...	1	1	...	...	...	3	3	4	12
Holmes .....	...	...	...	...	...	...	...	...	...	1	1	2
Hocking	1	3	12	8	3	5	2	13	10	6	15	78
Jackson	1	...	8	15	22	17	17	36	26	35	37	214
Jefferson	2	...	7	10	1	11	10	13	22	24	30	130
Lawrence	3	...	4	2	2	...	7	2	2	4	9	35
Mahoning	4	...	13	7	2	4	...	4	3	2	3	42
Medina	1	2	5	1	3	3	6	2	7	3	5	38
Meigs	6	...	8	6	...	...	5	12	5	5	10	57
Morgan .....	...	...	1	1	...	1	...	2	1	2	1	9
Monroe .....	...	...	...	...	...	...	...	...	...	...	...	...
Muskingum ..	...	...	4	6	7	6	6	6	5	3	4	47
Noble .....	...	1	...	...	1	...	...	1	1	1	2	7
Perry	10	...	17	18	13	35	20	30	39	36	29	247
Portage .....	...	...	4	...	1	4	3	3	3	3	2	23
Scioto .....	...	...	...	1	1	...	...	1	...	...	...	3
Stark	7	...	21	11	15	10	21	20	22	30	29	186
Summit	3	1	7	2	...	1	1	2	1	1	3	22
Trumbull	10	1	10	2	...	...	...	...	1	1	...	25
Tuscarawas ..	1	1	10	6	7	10	20	29	20	19	27	150
Vinton	2	...	...	2	...	1	2	2	4	6	5	24
Washington ..	...	...	...	...	...	...	1	...	...	...	...	1
Wayne	1	...	1	3	3	2	2	2	3	2	4	23
Total....	82	12	188	178	119	152	177	259	267	293	341	2,068

DETAILED LIST OF MAPS OF MINES FILED DURING THE YEAR 1904,
BY COUNTIES.

<i>Athens County.</i>		
No. 53 (Beattie Bros).....	Carbondale No. 2.....	No. 252 (Phoenix No. 2).
No. 256 (Briar Ridge)....	No. 10	No. 256.
No. 10X (Orbiston).....	No. 24	Sedalia.
No. 311 (Jumbo)	No. 205 (Pekin).....	Luhrig No. 1.
Belle Run No. 55.....	Halbert or Shaffer.....	Luhrig No. 2.
No. 203 (Elm Rock).....	Wells	Nelsonville Clay.
No. 5 (New Pittsburg)...	No. 204 (Somers).....	Daleton No. 2.
McLeish No. 31.....	Imperial No. 1.....	No. 201 (Floodwood).
No. 267 (Jobs No. 17)....	Jobs No. 23.....	No. 281 (Modoc).
Carbondale No. 3.....	No. 255	Moor (Del Carbo).
New York No. 31.....	No. 21 (C. & H. C. & I.)...	No. 23 (C. & H. C. & I.)
No. 25 (C. & H. C. & I.)..	No. 57 (C. & H. C. & I.)....	
	(abandoned)	
No. 1 (C. & H. C. & I.)....	No. 29 (C. & H. C. & I.)....	
<i>Belmont County.</i>		
Nail Mill	Wheeling Creek No. 1.....	Tin Plate.
New Crescent No. 2.....	Crescent No. 3.....	Crescent No. 4.
Actna Standard	Walnut Hill No. 1.....	Buckeye.
Cochran	Pipe Creek	Schicks.
Pultney	Empire No. 1.....	Empire No. 2.
Maple Hill No. 2.....	Dellora No. 1.....	New Taggart.
Maple Hill	Neffs	Black Diamond.
Laughlin	Moore's Run	Lydia.
Empire No. 3.....	Summit No. 1.....	Gaylord.
O. & W. Va.....	Lansing	Troll No. 1.
Glen	Franklin	Troll No. 2.
Columbia	Black Oak	Crescent No. 5.
<i>Carroll County.</i>		
Magnolia	Reatty No. 2.....	Somers No. 2.
Heatherington No. 2.....	Big Vein	Somers No. 3.
Huffs Run No. 2.....		
<i>Columbiana County.</i>		
Slope	New Shaft	Cherry Valley No. 3.
Folts or Teegarden.....	Fairfield No. 2.....	State Line Slope.
Lisbon	Prospect Hill No. 2.....	Big Walnut.
Slope No. 2.....	Walker Clay	
<i>Coshocton County.</i>		
Drake or Hay No. 2.....	Franklin No. 1.....	Morgan Run No. 3.
Wade No. 3.....	Conley No. 1.....	Oden Valley.
Arnold		
<i>Gallia County.</i>		
Carl No. 1.....	Swan Creek	
<i>Guernsey County.</i>		
Central	Imperial	Old Orchard.
Cisco	Walhounding	Little Kate.
Trail Run	Black Top	Hartford.
Indian Camp	Guernsey	Ideal.
Forsythe	Detroit	Kings.

DETAILED LIST OF MAPS OF MINES—Continued.

Murray Hill	Klondike	Guernsey Brick.
Union No. 1.....	Blue Bell	Cleveland No. 1.
	<i>Harrison County.</i>	
Clover Leaf	Robyville No. 1.....	Robyville No. 2.
Ewing		
	<i>Holmes County.</i>	
Townsend		
	<i>Hocking County.</i>	
No. 15	No. 207	Lost Run.
No. 202	Black Diamond	New Pittsburg No. 1.
New Pittsburg No. 2.....	New Pittsburg No. 3.....	New Pittsburg No. 6.
New Pittsburg No. 7.....	Morris No. 2 (Brush Fork)	
New Pittsburg No. 29.....	Morris No. 3 (Brush Fork)	
.....	Snake Hollow No. 1 (West Hill)	
.....	Snake Hollow No. 2 (East Hill)	
	<i>Jackson County.</i>	
Star No. 4.....	Milton No. 3.....	Milton No. 4.
Crescent	Tibbals	Commercial.
Rottinghaus	Bloomfield	Domestic.
Rock	Hurd Slope	Northern.
Superior No. 1.....	Jones & Morgan No. 3.....	Tom Corwin No. 1.
Superior No. 2.....	Chapman	Milton No. 2.
Superior No. 3.....	Grace	Buckeye No. 2.
Superior No. 4.....	Springfield	Alma.
Superior No. 8.....	Fluhart No. 1.....	Standard.
Superior No. 9.....	Fluhart No. 2.....	Emma No. 2, new.
Superior No. 10.....	Fluhart No. 3.....	Emma No. 3.
Wellston No. 3.....	Ohio	Jones No. 1.
Globe No. 3.....		
	<i>Jefferson County.</i>	
High Shaft	U. S. 1 to 10.....	Forest City (coal).
Hosack	Calumet Coal	Great Western (clay).
Kelley No. 2.....	Portland	McFayden.
O'Neil	Calumet Clay	Amsterdam.
La Belle	Great Western Coal.....	Forest City (clay).
Rainsey No. 3.....	Ramsey No. 4.....	Ramsey No. 5.
Dorothy	Glens Run No. 1.....	Little Giant.
Freeman (Coal)	Glens Run No. 2.....	Zerbe.
Freeman (Clay)	Empire Clay	Jefferson No. 1.
Jefferson No. 2.....	Jefferson No. 3.....	Long Run.
	<i>Lawrence County.</i>	
New Castle	Kelley	Nancy.
Pine Grove Ore	Black Fork	Irish Hollow.
Clayton Nos. 3, 4 and 5.....		
	<i>Mahoning County.</i>	
Fairview No. 3.....	McDonald	Barber.

DETAILED LIST OF MAPS OF MINES—Continued.

<i>Medina County.</i>		
Whitman	Easter	Whelan No. 2.
Card No. 5.....	Klondike	
<i>Meigs County.</i>		
Peacock	Charter Oak	Svr case Slope.
Dabney	Rolling Mill No. 2.....	Kings.
Pittsburg	Silver Run No. 2.....	Lewis.
Kochler		
<i>Muskingum County.</i>		
Blue Rock	Cannellville	Cadillac No. 1.
		Cadillac No. 2.
<i>Morgan County.</i>		
Rose		
<i>Noble County.</i>		
Laura	Bell Valley	
<i>Perry County.</i>		
No. 3	No. 5	No. 8.
No. 21	No. 253	No. 302.
Lyonsdale New	No. 268	Beech Grove No. 6.
No. 22	X X	Keystone No. 2.
No. 301	No. 20	Keystone No. 3.
No. 321	No. 37	Keystone No. 4.
Santoy	Buckeye No. 5.....	Northwest.
Santoy No. 2.....	Hazelton	No. 75.
No. 67	No. 9	No. 47.
Keystone No. 1.....	No. 12	
<i>Portage County.</i>		
Hutson No. 4.....	Mullen Shaft	
<i>Stark County.</i>		
Canton Stoneware	Massillon F. B.....	No. 8.
McGinty	Singer No. 1.....	Elm Run No. 3.
Minglewood No. 2.....	New Greenville No. 3.....	No. Massillon No. 9.
Central No. 7.....	Elm Run No. 4.....	Warwick No. 5.
Stark	Indian Run	Fox No. 12.
Krause No. 15.....	Oakwood No. 16.....	Sherwood.
Pocock No. 3.....	No. 13	H. B. Camp.
Brookfield	No. 17	Carr.
Elm Run No. 5.....	So. Massillon	Davis.
Elm Run No. 6.....	No. 1	
<i>Summit County.</i>		
Turkey Foot	Beechwood	Gerard.
<i>Tuscarawas County.</i>		
Wainwright No. 4.....	Midvale No. 3.....	Goshen No. 2.
Buckhorn	Maple Grove	Houk.
Twin City	Lobby	Erhard.

DETAILED LIST OF MAPS OF MINES—Concluded.

East Goshen No. 1.....	Thompson Run East.....	Novelty Brick.
East Goshen No. 2.....	Thompson Run West.....	West Goshen.
Royal Coal No. 2.....	Center Valley	Goshen Central.
Huffs Run	Long Meadow	Goshen Hill.
Beaver	Egypt	Reeves No. 2.
Beaver Dam No. 2.....	Robison Clay	Wainwright No. 6.
<i>Vinton County.</i>		
Star No. 2.....	Cornelia	Elk Fork.
Clarion	Alma Cement	
<i>Wayne County.</i>		
West Lebanon No. 1.....	Dalton No. 4.....	Stewart..
Doylestown .....	.....

APPOINTMENTS SINCE THE CREATION OF THE DEPARTMENT.

Name of Inspector.	County.	Governor by whom appointed.	Term began.	Term expired.	Time served.	Remarks.
<i>Chief Inspectors.</i>						
Andrew Roy, D.....	Trumbull	Wm. Allen, D.....	April 6, 1874	Apr. 6, 1878	4 years	Resigned.
Jas. D. Poston, D.....	Hocking	R. M. Bishop, D.....	April 6, 1878	Nov. 15, 1879	1 yr. 7 mo.	Not confirmed by Senate.
David Owens, D.....	Trumbull	R. M. Bishop, D.....	Nov. 16, 1879	Feb. 12, 1880	3 months	Resigned.
Andrew Roy, R.....	Jackson	Chas. Foster, R.....	Feb. 12, 1880	Feb. 16, 1884	4 years	Reappointed.
Chas. B. Bancroft, D.....	Gallia	Geo. Hoadley, D.....	Feb. 16, 1884	Apr. 1, 1888	4 yrs. 1½ mo.	Reappointed.
Robt. M. Haseltine, R.....	Mahoning	Joseph B. Foraker, R.....	Apr. 1, 1888	Apr. 30, 1888	1 month	Reappointed.
Robt. M. Haseltine, R.....	Mahoning	Joseph B. Foraker, R.....	May 1, 1888	Apr. 30, 1892	4 years	Reappointed.
Robt. M. Haseltine, R.....	Mahoning	Wm. McKinley, Jr., R.....	May 1, 1892	Apr. 30, 1896	4 years	Resigned.
Elmer G. Biddison, R.....	Athens	Asa S. Bushnell, R.....	May 1, 1896	Apr. 30, 1900	4 years	Incumbent.
George Harrison, R.....	Jackson	George K. Nash, R.....	May 1, 1900	Apr. 30, 1904	4 years	
		Myron T. Herrick.....	May 1, 1904	Apr. 30, 1908	.....
<i>District Inspectors.</i>						
Jacob J. Klein, R.....	Stark	Chas. Foster, R.....	June 4, 1881	Jan. 26, 1883	2 yrs. 7½ mo.	Resigned.
John P. Williams, R.....	Trumbull	Chas. Foster, R.....	Jan. 26, 1883	Feb. 16, 1884	1 yr. 21 days	Resigned.
Austin P. King, Jr., D.....	Columbiana	Geo. Hoadley, D.....	Feb. 16, 1884	Apr. 30, 1886	2 yrs 2½ mo.	Resigned, held over as no appointment was made at expiration of term.
Wm. Dalrymple, D.....	Athens	Geo. Hoadley, D.....	May 1, 1884	Mar. 1, 1888	3 yrs. 10 mo.	May 1, 1887.
Wm. A. Davis, D.....	Guernsey	Geo. Hoadley, D.....	May 1, 1884	Feb. 15, 1886	1 yr. 9½ mo.	Resigned.
Joseph L. Morris, R.....	Coshocton	Joseph B. Foraker, R.....	Feb. 15, 1886	June 1, 1889	3 yrs. 2½ mo.	Resigned.
D. J. Harry, R.....	Jackson	Joseph B. Foraker, R.....	Apr. 1, 1888	Apr. 30, 1888	1 month	Reappointed.
D. J. Harry, R.....	Jackson	Joseph B. Foraker, R.....	Apr. 1, 1888	Apr. 30, 1891	3 years	
David E. Evans, R.....	Meigs	Joseph B. Foraker, R.....	May 1, 1888	Apr. 30, 1891	3 years	
Jas. W. Haughee, R.....	Athens	Joseph B. Foraker, R.....	May 1, 1888	Apr. 30, 1891	3 years	
Robert Bell, R.....	Stark	Joseph B. Foraker, R.....	May 8, 1886	Apr. 30, 1887	11 mos. 23d.	Reappointed.
Robert Bell, R.....	Stark	Joseph B. Foraker, R.....	May 1, 1887	Apr. 30, 1888	1 year	Reappointed.

APPOINTMENTS SINCE THE CREATION OF THE DEPARTMENT. — Concluded.

Name of Inspector.	County.	Governor by whom appointed.	Term began.	Term expired.	Time served.	Remarks.
<i>District Inspectors—</i>						
<i>Concluded.</i>						
Robert Bell, R.	Stark	Joseph B. Foraker, R.	May 1, 1888	Aug 11, 1890	2 y 3 mo. 11 d.	Resigned.
Ebenezer Lewis, D.	Summit	Jas. E. Campbell, D.	Aug. 11, 1890	Apr. 30, 1891	8 mo. 20 d.	Reappointed.
Ebenezer Lewis, D.	Summit	Jas. E. Campbell, D.	May 1, 1891	Apr. 30, 1894	3 years	Reappointed.
Thos. H. Love, R.	Carroll	Joseph B. Foraker, R.	June 1, 1889	Aug. 1, 1891	2 yrs. 2 mo.	Reappointed.
Thos. H. Love, R.	Carroll	Wm. McKinley, Jr., R.	July 15, 1892	Apr. 30, 1894	1 y. 9 m. 15 d.	Reappointed.
Thos. H. Love, R.	Carroll	Wm. McKinley, Jr., R.	May 1, 1894	Feb. 15, 1898	3 yrs. 9½ mo.	Resigned.
Wm. B. Rennie, D.	Tuscarawas	Jas. E. Campbell, D.	Aug. 1, 1891	July 15, 1892	11 mo. 15 d.	Resigned.
Jno. E. Short, D.	Hocking	Jas. E. Campbell, D.	May 1, 1891	May 7, 1894	3 yrs. 7 days.	Resigned.
Adam P. McDonald, D.	Perry	Jas. E. Campbell, D.	May 1, 1891	July 15, 1892	1 yr. 2½ mo.	Resigned.
Wm. H. Turner, D.	Guernsey	Jas. E. Campbell, D.	May 1, 1891	Apr. 30, 1894	3 years	To take effect July 15, before entering upon his duties.
Jas. W. Haughee, R.	Athens	Wm. McKinley, R.	June 17, 1892	June 28, 1892	Appd., resg.	Reappointed.
Robt. H. Miller, R.	Perry	Wm. McKinley, R.	July 15, 1892	Apr. 30, 1894	1 yr. 9½ mos.	Reappointed.
Robt. H. Miller, R.	Perry	Wm. McKinley, R.	May 1, 1894	July 15, 1898	4 yrs. 2½ mo.	Reappointed.
Alexander Beattie, R.	Athens	Wm. McKinley, R.	July 15, 1892	July 15, 1895	3 years	Reappointed.
Jno. P. Jones, R.	Athens	Wm. McKinley, R.	July 15, 1895	July 15, 1898	3 years	Reappointed.
Jno. P. Jones, R.	Stark	Wm. McKinley, R.	July 15, 1892	Dec. 31, 1897	5½ yrs. 5½ mo.	Resigned.
Saml. Llewellyn, R.	Stark	Wm. McKinley, R.	July 15, 1895	May 21, 1897	2 yrs. 12 da.	Reappointed.
Saml. Llewellyn, R.	Jackson	Wm. McKinley, R.	May 9, 1894	May 19, 1900	2 y 11 m 28 d	Reappointed.
Thos. McGough	Belmont	Asa S. Bushnell, R.	May 21, 1897	May 19, 1900	3 years	Reappointed.
Thos. McGough	Belmont	Wm. McKinley, R.	May 1, 1894	Apr. 30, 1897	3 yrs. 1 mo.	Reappointed.
Thos. McGough	Belmont	Asa S. Bushnell, R.	June 1, 1900	Apr. 30, 1903	2 yrs. 11 mo.	Incumbent.
Thos. McGough	Belmont	Geo. K. Nash, R.	May 1, 1903	Apr. 30, 1906	3 years	Reappointed.
Rees T. Davis	Columbiana	Wm. McKinley, R.	May 1, 1894	Apr. 30, 1897	3 yrs. 1 mo.	Reappointed.
Wm. K. Moore	Stark	Asa S. Bushnell, R.	May 1, 1897	May 31, 1900	3 yrs. 1 mo.	Reappointed.
		Asa S. Bushnell, R.	Jan 17, 1898	July 15, 1898	6 months	

Wm. K. Moore.....	Stark	Asa S. Bushnell, R....	July 15, 1898	July 1, 1900	1 y. 11 m. 15 d	Resigned.
Jas. P. Davis.....	Carroll	Asa S. Bushnell, R....	Feb. 15, 1898	1, 1901	2 y. 10 m. 15 d	Reappointed.
Jas. P. Davis.....	Carroll	Geo. K. Nash, R....	Jan. 1, 1901	30, 1903	2 yrs. 4 mos.	Incumbent.
L. W. Hull.....	Carroll	Geo. K. Nash, R....	May 1, 1903	30, 1906	.....	Resigned.
David H. Williams.....	Athens	Asa S. Bushnell, R....	July 15, 1898	15, 1899	1 year	Reappointed.
David H. Williams.....	Athens	Asa S. Bushnell, R....	July 15, 1901	15, 1901	2 years	Incumbent.
David B. Wilson.....	Perry	Geo. K. Nash, R....	July 15, 1898	15, 1904	.....	Reappointed.
David B. Wilson.....	Perry	Asa S. Bushnell, R....	July 15, 1900	30, 1900	1 y. 10 m. 15 d	Reappointed.
R. M. Mason.....	Hocking	Geo. K. Nash, R....	June 1, 1900	9, 1903	3 yrs. 9 days.	Resigned.
R. M. Mason.....	Hocking	Geo. K. Nash, R....	May 19, 1900	30, 1903	2 y. 11 m. 11 d	Reappointed.
W. H. Turner.....	Hocking	Geo. K. Nash, R....	May 1, 1903	15, 1903	3 mos. 15 da.	Resigned.
W. H. Turner.....	Guernsey	Geo. K. Nash, R....	June 1, 1900	30, 1903	2 yrs. 11 mo.	Reappointed.
W. H. Miller.....	Guernsey	Geo. K. Nash, R....	May 1, 1903	30, 1906	.....	Incumbent.
W. H. Miller.....	Stark	Geo. K. Nash, R....	July 1, 1900	15, 1901	1 yr. 15 da....	Reappointed.
W. H. Miller.....	Stark	Geo. K. Nash, R....	July 15, 1901	15, 1904	3 years	Resigned.
Ed. S. Smith.....	Muskingum	Geo. K. Nash, R....	Aug. 9, 1903	30, 1906	11 mo. 22 da.	Resigned.
Thos. Waters.....	Hocking	Geo. K. Nash, R....	Aug. 15, 1903	30, 1906	9 mo. 16 da..	Incumbent.
Thos. Waters.....	Jackson	Myron T. Herrick, R.	June 1, 1904	30, 1906	.....	Incumbent.
David H. Williams.....	Athens	Myron T. Herrick, R.	July 16, 1904	15, 1907	.....	Incumbent.
Lucius Hull.....	Athens	Myron T. Herrick, R.	June 1, 1904	30, 1906	.....	Incumbent.
W. H. Miller.....	Stark	Myron T. Herrick, R.	July 16, 1904	15, 1907	.....	Incumbent.

APPOINTMENTS SINCE THE CREATION OF THE DEPARTMENT.—Concluded.

Name of Inspector.	County.	Governor by whom appointed.	Term began.	Term expired.	Time served.	Remarks.
<i>District Inspectors—</i>						
<i>Concluded.</i>						
Robert Bell, R.	Stark	Joseph B. Foraker, R.	May 1, 1888	Aug 11, 1888	2 y 3 mo. 11 d	Resigned.
Ebenezer Lewis, D.	Summit	Jas. E. Campbell, D.	Aug. 11, 1890	Apr. 30, 1891	8 mo. 20 d.	Reappointed.
Ebenezer Lewis, D.	Summit	Jas. E. Campbell, D.	May 1, 1891	Apr. 30, 1894	3 years	Reappointed.
Thos. H. Love, R.	Carroll	Joseph B. Foraker, R.	June 1, 1889	Aug. 1, 1891	2 yrs. 2 mo.	Reappointed.
Thos. H. Love, R.	Carroll	Wm. McKinley, Jr., R.	July 15, 1892	Apr. 30, 1894	1 y. 9 m. 15 d	Reappointed.
Thos. H. Love, R.	Carroll	Wm. McKinley, Jr., R.	May 1, 1894	Feb. 15, 1898	3 yrs. 9 $\frac{1}{4}$ mo.	Resigned.
Wm. B. Rennie, D.	Tuscarawas	Jas. E. Campbell, D.	Aug. 1, 1891	July 15, 1892	11 mo. 15 d.	Resigned.
Jno. E. Short, D.	Hocking	Jas. E. Campbell, D.	May 1, 1891	May 7, 1894	3 yrs. 7 days.	Resigned.
Adam P. McDonald, D.	Perry	Jas. E. Campbell, D.	May 1, 1891	July 15, 1892	1 yr. 2 $\frac{1}{2}$ mo.	To take effect July 15, before entering upon his duties.
Wm. H. Turner, D.	Guernsey	Jas. E. Campbell, D.	May 1, 1891	Apr. 30, 1894	3 years	Reappointed.
Jas. W. Haughee, R.	Athens	Wm. McKinley, R.	June 17, 1892	June 28, 1892	Appd., resg.	
Rebt. H. Miller, R.	Perry	Wm. McKinley, R.	July 15, 1892	Apr. 30, 1894	1 yr. 9 $\frac{1}{4}$ mos.	Reappointed.
Rebt. H. Miller, R.	Perry	Wm. McKinley, R.	May 1, 1894	July 15, 1898	4 yrs. 2 $\frac{1}{2}$ mo.	Reappointed.
Alexander Beattie, R.	Athens	Wm. McKinley, R.	July 15, 1892	July 15, 1895	3 years	Reappointed.
Alexander Beattie, R.	Athens	Wm. McKinley, R.	July 15, 1895	July 15, 1898	3 years	Reappointed.
Jno. P. Jones, R.	Stark	Wm. McKinley, R.	July 15, 1892	July 15, 1895	3 years	Reappointed.
Jno. P. Jones, R.	Stark	Wm. McKinley, R.	July 15, 1895	Dec. 31, 1897	2 yrs. 5 $\frac{1}{2}$ mo.	Resigned.
Saml. Llewellyn, R.	Jackson	Wm. McKinley, R.	May 21, 1894	May 21, 1897	3 yr. 12 da.	Reappointed.
Saml. Llewellyn, R.	Jackson	Asa S. Bushnell, R.	May 21, 1897	May 19, 1900	2 y 11 m 28 d	Reappointed.
Thos. McGough	Belmont	Wm. McKinley, R.	May 1, 1894	Apr. 30, 1897	3 years	Reappointed.
Thos. McGough	Belmont	Asa S. Bushnell, R.	May 1, 1897	June 1, 1900	3 yrs. 1 mo.	Reappointed.
Thos. McGough	Belmont	Geo. K. Nash, R.	June 1, 1900	Apr. 30, 1903	2 yrs. 11 mo.	Incumbent.
Thos. McGough	Belmont	Geo. K. Nash, R.	May 1, 1903	Apr. 30, 1906	3 years	Reappointed.
Rees T. Davis	Columbiana	Wm. McKinley, R.	May 1, 1894	Apr. 30, 1897	3 yrs. 1 mo.	Reappointed.
Rees T. Davis	Columbiana	Asa S. Bushnell, R.	May 1, 1897	May 31, 1900	3 yrs. 1 mo.	Reappointed.
Wm. K. Moore	Stark	Asa S. Bushnell, R.	Jan 17, 1898	July 15, 1898	6 months	Reappointed.

Wm. K. Moore.....	Stark	Asa S. Bushnell, R....	July 15, 1898	July 1, 1900	1 y. 11 m. 15 d	Resigned.
Jas. P. Davis.....	Carroll	Asa S. Bushnell, R....	Feb. 15, 1898	Jan. 1, 1901	2 y. 10 m 15 d	Reappointed.
Jas. P. Davis.....	Carroll	Geo. K. Nash, R....	Jan. 1, 1901	Apr. 30, 1903	2 yrs. 4 mos.	Reappointed.
L. W. Hull.....	Carroll	Geo. K. Nash, R....	May 1, 1903	Apr. 30, 1906	.....	Incumbent.
David H. Williams.....	Athens	Asa S. Bushnell, R....	July 15, 1898	July 15, 1899	1 year	Resigned.
David H. Williams.....	Athens	Asa S. Bushnell, R....	July 15, 1899	July 15, 1901	2 years	Reappointed.
David B. Wilson.....	Perry	Geo. K. Nash, R....	July 15, 1901	July 15, 1904	.....	Incumbent.
David B. Wilson.....	Perry	Asa S. Bushnell, R....	July 15, 1898	May 30, 1900	1 y. 10 m. 15d	Reappointed.
R. M. Mason.....	Hocking	Geo. K. Nash, R....	June 1, 1900	June 9, 1903	3 yrs. 9 days.	Resigned.
R. M. Mason.....	Hocking	Geo. K. Nash, R....	May 19, 1900	Apr. 30, 1903	2 y. 11 m 11 d	Reappointed.
W. H. Turner.....	Guernsey	Geo. K. Nash, R....	May 1, 1903	Aug. 15, 1903	3 mos. 15 da.	Resigned.
W. H. Turner.....	Guernsey	Geo. K. Nash, R....	June 1, 1900	Apr. 30, 1903	2 yrs. 11 mo.	Reappointed.
W. H. Miller.....	Stark	Geo. K. Nash, R....	May 1, 1903	Apr. 30, 1906	.....	Incumbent.
W. H. Miller.....	Stark	Geo. K. Nash, R....	July 15, 1901	July 15, 1901	1 yr. 15 da...	Reappointed.
Ino. Winefordner.....	Muskingum	Geo. K. Nash, R....	July 9, 1903	July 15, 1904	3 years	Resigned.
Ed. S. Smith.....	Hocking	Geo. K. Nash, R....	June 9, 1903	Apr. 30, 1906	11 mo. 22 da.	Resigned.
Thos. Waters.....	Jackson	Myron T. Herrick, R.	Aug. 15, 1903	Apr. 30, 1906	9 mo. 16 da..	Incumbent.
David H. Williams.....	Athens	Myron T. Herrick, R.	June 1, 1904	Apr. 30, 1906	.....	Incumbent.
Lucius Hull.....	Athens	Myron T. Herrick, R.	July 16, 1904	July 15, 1907	.....	Incumbent.
W. H. Miller.....	Stark	Myron T. Herrick, R.	June 1, 1904	Apr. 30, 1906	.....	Incumbent.
W. H. Miller.....	Stark	Myron T. Herrick, R.	July 16, 1904	July 15, 1907	.....	Incumbent.

LIST OF LARGE COAL COMPANIES IN OHIO, WITH ADDRESSES,
FOR 1904.

Name of Owner or Operator.	P. O. Address.
<i>Athens County.</i>	
Carbondale Coal Co.....	Carbondale.
Continental Coal Co.....	Columbus.
Sunday Creek Coal Co.....	Columbus.
New Pittsburg Coal Co.....	Columbus.
Luhrig Coal Co.....	Luhrig.
Maple Hil Coal Co.....	Nelsonville.
Juniper & Sons.....	Nelsonville.
Northern Fuel Co.....	Jacksonville.
Sedalia Coal Co.....	Glouster.
A. H. Wells.....	Nelsonville.
Hisylvania Coal Co.....	Trimble.
New York Coal Co.....	Columbus.
Columbus and Hocking Coal and Iron Co.....	Columbus.
Imperial Coal Co.....	Nelsonville.
Winchester Coal Co.....	Carbondale.
Hocking Mining Co.....	Athens.
G. C. Silcott.....	Nelsonville.
Federal Coal Co.....	Marietta.
Twin Vein Coal Co.....	Broadwell.
Black Diamond Coal and Coke Co.....	Columbus.
Jennings Coal and Coke Co.....	Utley.
McLeish Coal Co.....	Columbus.
Hippel Coal Co.....	Coalton.
Nelsonville Sewer Pipe Co.....	Nelsonville.
Johnson Coal Mining Co.....	Columbus.
<i>Belmont County.</i>	
Lorain Coal and Dock Co.....	Cleveland.
Empire Coal Co.....	Pittsburgh, Pa.
Belmont Coal Co.....	Glencoe.
Youghiogheny and Ohio Coal Co.....	Cleveland.
Manufacturers' Fuel Co.....	Chicago, Ill.
American Sheet and Tin Plate Co.....	Bridgeport.
M. J. Schick & Co.....	Bellaire.
Carnegie Steel Co.....	Bellaire.
Hall & Gilhooley.....	Bellaire.
O'Malley & Johnson.....	Bellaire.
E. N. Boggs.....	Barton.
Flushing Coal Co.....	Flushing.
Captina Coal Co.....	Armstrongs Mills.
Hart Coal Co.....	Stewartsville.
Provident Coal Co.....	St. Clairsville.
Wm. A. Werner.....	Zanesville.
Pittsburg and Cleveland Coal Co.....	Martins Ferry.
Johnson Bros. Coal Co.....	Bellaire.
Kennon Coal and Mining Co.....	Cleveland.
Troll Mining Co.....	St. Clairsville.
American Tin Plate Co.....	Martins Ferry.
Buckeye Coal and Mining Co.....	Flushing.
Pultney Coal Co.....	Bellaire.
Barton Coal Co.....	Barton.
Neffs Coal Mining Co.....	Neffs.
Moore's Run Coal Co.....	Wheeling, W. Va.
Purseglove Coal Co.....	Maynard.
Summit Coal Co.....	Cleveland.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued.

Name of Owner or Operator.	P. O. Address.
Columbia Coal Co.....	Fairpoint.
Media Coal Co.....	Fairmount, W. Va.
Whitaker-Glessner Coal Co.....	Martins Ferry.
<i>Carroll County.</i>	
Davis Railway Coal Co.....	Canton.
Malvern Fire Clay Co.....	Malvern.
Magnolia Coal Co.....	Magnolia.
National Fire Proofing Co.....	East Palestine.
Sterling Mining Co.....	Cleveland.
C. W. Somers.....	Cleveland.
Kirk & Deveney.....	Salineville.
Van Kirk Mining Co.....	Mineral City.
Robinson Clay Product Co.....	Akron.
The James Mining Co.....	Dell Roy.
<i>Columbiana County.</i>	
Ohio and Pennsylvania Coal Co.....	Cleveland.
Big Vein Coal Co.....	Cleveland.
National Fire Proofing Co.....	East Palestine.
Powers Mining Co.....	Negley.
Salem Coal Co.....	Salem.
Card & Prosser.....	Lisbon.
South Palmyra Coal Co.....	Cleveland.
Columbia Fire Clay Co.....	Cleveland.
Peerless Coal Co.....	Cleveland.
Prospect Hill Coal Co.....	East Palestine.
Lisbon Coal Co.....	Cleveland.
Leetonia Coal Co.....	Leetonia.
Herriott Coal Co.....	Elkton.
James Strabley.....	Salineville.
Salem Fuel Co.....	Salem.
Norris Mining and Manufacturing Co.....	Pittsburg, Pa.
Lemmon Coal Co.....	Salem.
Unedda Coal Co.....	Lisbon.
<i>Coshocton County.</i>	
David Davis.....	Conesville.
Williams & Son.....	Coshocton.
Drake Coal Co.....	Coshocton.
Columbus Coal and Mining Co.....	Columbus.
Best Coal Co.....	Franklin Station.
Wade Coal Co.....	Cleveland.
Morgan Run Coal Co.....	Cleveland.
Arnold Coal Co.....	Columbus.
Oden Valley Coal Co.....	Coshocton.
<i>Guernsey County.</i>	
Wills Creek Coal Co.....	Detroit, Mich.
J. W. Ellsworth.....	Cleveland.
Opperman Coal Co.....	Cambridge.
Morris Coal Co.....	Cambridge.
Forsythe Coal Co.....	Danford.
Midway Coal Co.....	Cambridge.
Loomis, Moss & Co.....	Lore City.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued

Name of Owner or Operator.	P. O. Address.
Imperial Mining Co.....	Cambridge.
Ohio Coal Co.....	Cambridge.
National Coal Co.....	Akron.
J. H. Somers & Co.....	Cleveland.
Atlas Coal Co.....	Mt. Gilead.
Akron Coal Co.....	Akron.
Guernsey Brick and Construction Co.....	Cambridge.
Toledo Coal and Coke Co.....	Toledo.
Somers-Cambridge Coal Co.....	Cleveland.
Ohio and Northwestern Coal Mining Co.....	Cambridge.
<i>Gallia County.</i>	
Carl Coal Co.....	Carlton.
Vinton Coal Co.....	Vinton.
Swan Creek Coal Co.....	Gallipolis.
Black Diamond Coal Co.....	Gallia.
<i>Harrison County.</i>	
Pittsburg Block Coal Co.....	Pittsburg, Pa.
Clover Leaf Coal Mining Co.....	Cleveland.
White Ash Coal Co.....	Columbus.
Roby Coal Co.....	Cleveland.
Adena Mining Co.....	Adena.
Freeport Coal Co.....	Freeport.
<i>Holmes County.</i>	
C. A. Townsend.....	Cleveland.
<i>Hocking County.</i>	
New Pittsburg Coal Co.....	Columbus.
Buckeye Coal and Railway Co.....	Columbus.
Continental Coal Co.....	Columbus.
R. Stalter Coal Co.....	Nelsonville.
The Haydenville Co.....	Columbus.
Columbus and Hocking Coal and Iron Co.....	Columbus.
J. E. Jones, Jr.....	New Straitsville.
G. W. Hite Coal Co.....	Sand Run.
Carbon Hill Mining Co.....	Carbon Hill.
<i>Jackson County.</i>	
Superior Coal Co.....	Jackson.
Chapman Coal Co.....	Jackson.
Fluhart Coal and Mining Co.....	Wellston.
Milton Coal Co.....	Wellston.
Comet Coal Co.....	Wellston.
Jones Coal Co.....	Jackson.
Enma Coal Co.....	Jackson.
Northern Coal Co.....	Jackson.
Jones & Morgan.....	Jackson.
Wellston Coal Co.....	Wellston.
Tom Corwin Coal Co.....	Dayton.
Buckeye Coal Co.....	Coalton.
Alma Coal Co.....	Glen Roy.
Victor Coal Co.....	Coalton.
Coalton Coal Co.....	Coalton.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued.

Name of Owner or Operator.	P. O. Address
W. A. Gosline & Co.....	Toledo.
Globe Iron Co.....	Jackson.
Crescent Coal Co.....	Jackson.
Star Furnace Co.....	Jackson.
Thomas-Davis Coal Co.....	Oak Hill.
Enterprise Coal Co.....	Jackson.
Dayton Coal and Iron Co.....	Wellston.
McKinley Coal Co.....	McArthur.
McGhee Coal Co.....	Wellston.
Jackson Fuel Co.....	Oak Hill.
Hippel Coal Co.....	Coalton.
Armstrong Coal Co.....	Jackson.
Symmes Creek Coal Co.....	Rempel.
W. Tibbals & Co.....	Jackson.
Washington Coal Co.....	Eiforts.
Pritchard & Poole.....	Glen Roy.
J. J. Rowe Coal Co.....	Coalton.
Rottinghaus Coal Co.....	Jackson.
Commercial Coal Co.....	Jackson.
Jones Coal Co.....	Oak Hill.
J. Rowe Coal Co.....	Coalton.
Wellston Fuel Co.....	Wellston.
Southern Ohio Coal Co.....	Wellston.
Bloomfield Mining Co.....	Jackson.
Domestic Coal Co.....	Wellston.
Jerry Morrow Coal Co.....	Wellston.
McKittrick Coal Co.....	Rempel.
Michigan and Ohio Coal Co.....	Wellston.
<i>Jefferson County.</i>	
Wheeling and Lake Erie Coal Mining Co.....	Dillonvale.
American Sewer Pipe Co.....	Pittsburg, Pa.
Glens Run Coal Co.....	Cleveland.
Steubenville Coal Mining Co.....	Steubenville.
Kelley Coal and Coke Co.....	Portland Sta.
Wayne Coal Co.....	Pittsburg.
Ohio and Pennsylvania Coal Co.....	Cleveland.
LaBelle Iron Works	Steubenville.
Pan Handle Coal Co.....	Cleveland.
W. E. Smith.....	Wellsville.
W. A. Taylor & Son.....	Bergholz.
Jefferson Coal Co.....	Cleveland.
Eastern Ohio Coal Co.....	Cleveland.
Russell Coal Co.....	Tiltonville.
Morris & Poston.....	Dunglen.
United States Coal Co.....	Dillonvale.
Irondale Coal Co.....	Irondale.
Salisbury Coal Co.....	Columbus.
Portland Coal Co.....	Wheeling, W. Va.
O'Neil Coal Co.....	Herrick.
Youghiogheny and Ohio Coal Co.....	Cleveland.
Roby Coal Co.....	Cleveland.
M. L. Williams Coal and Coke Co.....	Portland Station.
Brilliant Coal Co.....	Brilliant.
XL Coal Co.....	Bergholz.
Toronto Fire Clay Co.....	Toronto.
Witch Hazel Coal Co.....	Youngstown.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC.—Continued.

Name of Owner or Operator.	P. O. Address.
<i>Lawrence County.</i>	
Hanging Rock Iron Co.....	Hanging Rock.
Halley Coal Co.....	Pedro.
Jno. F. Hall Coal Co.....	Dayton.
Ironton Portland Cement Co.....	Ironton.
Belfont Iron Works.....	Ironton.
Black Fork Coal Co.....	Black Fork.
Kelley Nail and Iron Co.....	Ironton.
N. H. Kelley	Ironton.
Ginn Coal Co.....	Ironton.
<i>Mahoning County.</i>	
Ohio Coal and Clay Co.....	Washingtonville.
McKinley Coal Co.....	Beloit.
Zimmerman & Orr.....	Salem.
North Lima Co.....	Youngstown.
<i>Medina County.</i>	
Card & Prosser	Cleveland.
Hutchison Coal Co.....	Wadsworth.
Ohio Salt Co.....	Wadsworth.
<i>Meigs County.</i>	
Bengal Bros	Pomeroy.
Peacock Coal Co.....	Pomeroy.
Syracuse Coal and Salt Co.....	Syracuse.
Martin Ebersbach	Pomeroy.
Buckeye Salt Co.....	Pomeroy.
Hisylvania Coal Co.....	Columbus.
Wm. C. Russell	Middleport.
Monkey Run Coal Co.....	Middleport.
Pittsburg Mining Co.....	Minersville.
Russell & Bear.....	Pomeroy.
Coal Ridge Coal and Salt Co.....	Pomeroy.
Peacock Coal Co.....	Pomeroy.
Hocking Valley Fuel Co.....	Columbus.
Salisbury Coal Co.....	Columbus.
<i>Muskingum County.</i>	
Duncan Run Coal Co.....	Detroit, Mich.
Siler Coal Co.....	McConnellsville.
Blue Rock Coal Co.....	Gayssport.
Fobes & Tompkins.....	Columbus.
Maynard Bros.	Columbus.
W. H. Blaney	Dillon.
W. J. Scully.....	Dillon.
C. W. Joslin & Co.....	Zanesville.
Salisbury Coal Co.....	West Bay City, Mich.
John Reid	Zanesville.
W. A. Werner	Zanesville.
Elk Coal Co.....	Columbus.
Fair Oak Coal Co.....	Zanesville.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Morgan County.</i>	
Carding Coal Co.....	Rose Farm.
Tropic Mining Co.....	Toledo.
<i>Noble County.</i>	
Wills Creek Coal Co.....	Detroit, Mich.
Imperial Mining Co.....	Cleveland, Ohio.
<i>Perry County.</i>	
Columbus and Hocking Coal and Iron Co.....	Columbus.
Sunday Creek Coal Co.....	Columbus.
Buckeye Coal and Railway Co.....	Columbus.
Continental Coal Co.....	Columbus.
Upson Coal Co.....	Shawnee.
Maynard Bros.....	Columbus.
Essex Coal Co.....	New Straitsville.
Opperman Coal Co.....	Cambridge.
Taylor, Williams & Co.....	Shawnee.
W. A. Gosline & Co.....	Toledo.
Muskingum Valley Coal Co.....	Detroit, Mich.
L. V. Coal Co.....	Sawnee.
Zanesville Coal Co.....	Zanesville.
20th Century Coal Co.....	Columbus.
Imperial Coal Mining Co.....	Columbus.
Taylor & Price.....	New Straitsville.
Ambrose Gibbs.....	New Straitsville.
Hamilton and Wallace Coal Co.....	Redfield.
Saltillo Coal Co.....	Columbus.
Bristol Coal Co.....	Newark.
New England Coal Co.....	Columbus.
Chicago and Hocking Coal Co.....	Toledo.
Kennon Coal and Mining Co.....	Cleveland.
George C. Gibbs.....	New Straitsville.
Standard Hocking Coal Co.....	Chicago, Ill.
Jones Coal Co.....	New Straitsville.
Johnson Coal Co.....	New Straitsville.
White Ash Coal Co.....	Columbus.
Jobs-Hocking Coal Co.....	Chicago, Ill.
Simons Coal Co.....	Redfield.
Davis Bros.....	Shawnee.
Jenkins & Redfern.....	Shawnee.
Indian Run Mining Co.....	Wellston.
<i>Portage County.</i>	
Hutson Coal Co.....	Lloyd.
South Palmyra Coal Co.....	Wooster.
<i>Scioto County.</i>	
Hanging Rock Iron Co.....	Hanging Rock.
Effort Coal Co.....	Efforts.
Morgan & Horton.....	Efforts.
<i>Stark County.</i>	
Massillon Coal Mining Co.....	Massillon.
Massillon-Elm Run Coal Co.....	Canton.
Stark Coal Co.....	Massillon.
L. E. Smith.....	Greentown.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued

Name of Owner or Operator.	P. O. Address.
A. C. Dustman.....	Alliance.
J. F. Pocock.....	Massillon.
Louisville Brick and Tile Co.....	Louisville.
Indian Run Coal Co.....	Canton.
Canton Hollow Block Co.....	Canton.
Pigeon Run Coal Co.....	Massillon.
Crescent Coal Co.....	Alliance.
National Fire Proofing Co.....	Canton.
Livers & Smith.....	West Brookfield.
Canton Coal Mining Co.....	Canton.
South Massillon Coal Co.....	Massillon.
East Massillon Coal Co.....	Massillon.
Zuber & Wolfe.....	Osnaburgh.
Cleveland & Massillon Coal Co.....	North Lawrence.
Ed Eli.....	Alliance.
Buckeye Coal Co.....	Canal Fulton.
Newman Creek Coal Co.....	Massillon.
Booth Coal Co.....	Navarre.
<i>Summit County.</i>	
Hametown Coal Co.....	Barberton.
Brewster Coal Co.....	Akron.
White Oak Coal Co.....	Cleveland.
Beechwood-Massillon Coal Co.....	Massillon.
<i>Trumbull County.</i>	
Witch Hazel Coal Co.....	Youngstown.
<i>Tuscarawas County.</i>	
Somerdale Coal Co.....	Somerdale.
Midvale-Goshen Coal Co.....	Cleveland.
George Markley.....	Mineral City.
East Goshen Coal Co.....	Cleveland.
Goshen Coal Co.....	New Philadelphia.
C. W. Somers.....	Cleveland.
Rideway-Burton Co.....	Cleveland.
C. E. Holden.....	Mineral City.
Dennison Mining Co.....	Dennison.
American Sheet Steel Co.....	Canal Dover.
Van Kirk Mining Co.....	Mineral City.
Schindler Bros.....	Tuscarawas.
Mineral City Coal Co.....	Mineral City.
Carbon Hill Coal Co.....	Uhrichsville.
Shanesville Coal Co.....	Cleveland.
C. J. Nungesser.....	Beidler.
Hiawatha Coal Co.....	Toledo.
Cleveland-Tuscarawas Coal Co.....	Cleveland.
Royal Goshen Coal Co.....	Midvale.
Novelty Brick and Coal Co.....	Newcomertown.
Beaver Dam Coal Co.....	Cleveland.
Massillon-Tuscarawas Coal Co.....	Massillon.
Goshen Central Coal Co.....	Massillon.
J. E. Reeves & Co.....	Canal Dover.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Concluded.

Name of Owner or Operator.	P. O. Address.
Goshen Coal and Mining Co.....	Cleveland.
Goshen Hill Coal Co.....	Cleveland.
Globe Fire Clay Co.....	Cleveland.
Henry Shie	Shanesville.
Robinson Clay Product Co.....	Akron.
<i>Vinton County.</i>	
Star Coal Co.....	McArthur.
Moorehead Bros. & Jaynes.....	Hamden.
J. L. Lawler.....	Minerton.
Elk Fork Coal Co.....	McArthur.
Cornelia Mining Co.....	Wellston.
Gallia Mining Co.....	Jackson.
Alma Cement Co.....	Oreton.
Quinn Coal Co.....	Minerton.
Mohr & Minton	Columbus.
Warren Jones	Wellston.
Avenell Coal Co.....	Zaleski.
<i>Washington County.</i>	
E. H. Webster & Co.....	Beverly.
<i>Wayne County.</i>	
Card & Prosser Coal Co.....	Cleveland.
West Lebanon Coal Co.....	Wooster.
Massillon Coal Mining Co.....	Massillon.
Standard Coal Co.....	Doylestown.
Massillon-Navarre Coal Co.....	Canton.

LIMESTONE MINES AND QUARRIES.

Name of Owner or Operator.	P. O. Address.
<i>Adams County.</i>	
John McNeilan	West Union.
J. H. Ellison	Manchester.
Samuel Hopkins	Manchester.
<i>Allen County.</i>	
Geiger & Wilhelm	Lima.
Gray & Sons R. D. No. 2	Lima.
J. W. Long	Lima.
Watt Bros.	Herring.
L. J. Siddall	Bluffton.
Sam Herr	Bluffton.
Mollett Bros.	Bluffton.
E. J. Ford	Elida.
Arthur Fisher	Delphos.
Pugh Stone Co.	Lima.
Kroft Bros.	Ada.
David P. Schumacher	Bluffton.
<i>Butler County.</i>	
D. M. Skelley	Hamilton.
J. B. Scott (idle)	Hamilton.
Daniel Pabst	Hamilton.
<i>Clark County.</i>	
The Strunk Myer Lime Co.	Cold Springs.
Casparis Stone Co.	Columbus.
Springfield Stone and Lime Co.	Springfield.
Samuel S. Taylor, 85 Sherman Ave.	Springfield.
Mills Bros.	Springfield.
The Moores Lime Co.	Springfield.
J. W. Jenkins	Springfield.
W. A. Rubsam	Springfield.
Ira Roach (idle)	Enon.
C. F. Jackson Stone Co., 144 Yellow Springs St.	Springfield.
<i>Clermont County.</i>	
J. D. Sorrell	Loveland.
Henry W. Harlow	Marathan.
E. Hulick	Batavia.
<i>Crawford County.</i>	
Joseph Snavely	Osceola.
Brokensword Stone Co.	Bucyrus.
G. V. Harer	Lykens.
<i>Clinton County.</i>	
George W. Benlehr, R. R. No. 2	Wilmington.
J. W. Frazier	Wilmington.
R. T. Ryan	New Vienna.
Granville M. Oglesby	New Burlington.
John Ballard	Wilmington.

LIMESTONE MINES AND QUARRIES — Continued.

Name of Owner or Operator.	P. O. Address.
Asa Starbuck, R. R. No. 1.....	Wilmington.
John Foster	West Woodville.
Lewis Brandt	West Woodville.
Isaiah F. Miars (idle).....	Wilmington.
Jasper Brown	Wilmington.
<i>Delaware County.</i>	
F. L. Campbell	Delaware.
Thomas Owens (idle).....	Delaware.
M. Meredith & Son.....	Radnor.
John Warren (idle)	Warrenburg.
Scioto Lime and Stone Co.....	Delaware.
<i>Darke County.</i>	
J. B. Hershey (idle).....	Greenville.
J. A. Chenoeth (idle).....	Weavers Sta.
<i>Erie County.</i>	
M. Wagner Stone Co., Col. and Hayes Ave.....	Sandusky.
Chas. Krueger, R. R. No. 2.....	Sandusky.
Kelly Island Lime and Transport Co.....	Cleveland.
Frank Liles (idle).....	Sand Hill.
H. R. Barnes, R. R. No. 2.....	Sandusky.
<i>Franklin County.</i>	
Wm. Miller, 95 Central Ave.....	Columbus.
The Columbus Stone Co.....	Columbus.
Michael Hogan	Marble Cliff.
Eva McNinch, 116 Central Ave.....	Columbus.
William Lamb	Dublin.
J. C. Thompson.....	Dublin.
Casparis Stone Co.....	Columbus.
<i>Greene County.</i>	
Lida R. Helmer (idle), R. R. No. 8.....	Dayton.
The D. S. Irwin Co.....	Cedarville.
John B. Taylor (idle).....	Cedarville.
Boots, Bales & Conklin.....	Xenia.
George C. Toland.....	Jamestown.
<i>Hamilton County.</i>	
Ernest Howe, 225 Stark St.....	Cincinnati.
City Work House	Cincinnati.
Benj. Cooney, 718 Whittier St., Avondale.....	Cincinnati.
Henry Stagg & Sons, Miller Ave.....	Norwood.
Arthur W. Davis, 415 Johnson Bldg.....	Cincinnati.
Chas. M. Fields	Glendale.
Rucker Stone Co.....	Greenfield.
Grant Bros, Mt. Lookout Sta. "C".....	Cincinnati.
Nicholas Ruebel, Sta. "L".....	Cincinnati.
Mary Zaeske, Westwood, Sta. "L" (idle).....	Cincinnati.
W. R. Moore, Terrace Park (idle).....	Cincinnati.
C. S. Boone	Milford.

LIMESTONE MINES AND QUARRIES.—Continued.

Name of Owner or Operator.	P. O. Address.
<i>Hancock County.</i>	
J. W. Wells & Son (idle).....	Findlay.
Hirscher Stone Co.....	Findlay.
Isaac Hershey (D. S. Linton, Agt.).....	Findlay.
Wm. Bibler & Sons.....	Arlington.
David Huffman (idle).....	Ranson.
Amos Renkle.....	Ranson.
W. L. Schoonover, R. R. No. 4 (idle).....	Findlay.
C. E. Edgington, R. R. No. 1.....	McComb.
<i>Hardin County.</i>	
Jas. G. Tressel.....	Ada.
E. H. France.....	Bloomville.
D. R. McArthur & Co.....	Kenton.
John Herzogg.....	Patterson.
Patterson & Kroft.....	Ada.
<i>Harrison County.</i>	
J. P. Legett.....	Hopedale.
<i>Highland County.</i>	
Rucker Stone Co.....	Greenfield.
R. P. Pinkerton, R. R. No. 7.....	Hillsboro.
Frank Sharp.....	Lynchburg.
<i>Holmes County.</i>	
John C. Duncan (idle).....	Millersburg.
<i>Jackson County.</i>	
W. B. Yates.....	Kitchen.
Washington Coal Co.....	Kitchen.
<i>Lawrence County.</i>	
E. B. Willard & Co.....	Ironton.
Hanging Rock Iron Co.....	Hanging Rock.
McGugin Iron and Coal Co.....	Olive Furnace.
Ironton Portland Cement Co.....	Ironton.
Vernon Iron Co.....	Campbell.
Nannie H. Kelley.....	Steece.
<i>Logan County.</i>	
Bellefontaine Stone and Lime Co.....	Bellefontaine.
H. M. Brown.....	Belle Center.
John L. Stratton.....	West Middleburgh.
Mrs. Jacob Piatt.....	West Liberty.
<i>Lucas County.</i>	
J. L. Pray & Son.....	White House.

LIMESTONE MINES AND QUARRIES — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Marion County.</i>	
The John Evans Lime and Stone Co.....	Marion.
The Norris Christian Lime and Stone Co.....	Marion.
James G. Fairbanks.....	Marion.
J. D. Owens & Sons.....	Owens.
H. D. Henman.....	Marion.
<i>Miami County.</i>	
J. L. Reck.....	Ludlow Falls.
F. M. Coppock.....	Ludlow Falls.
The D. C. Stalter Co.....	Piqua.
The Ohio Marble Co.....	Piqua.
D. L. Face.....	Covington.
J. W. Ruhl.....	Covington.
C. F. Fletcher (idle).....	Covington.
Levi Falknor (idle).....	Covington.
Chas. Hoover, R. R. No. 4.....	Covington.
S. McLaughlin (idle).....	Covington.
S. E. Bixler.....	Covington.
J. M. C. Dean.....	Brandt.
R. H. Studebaker.....	Rex.
Chas. Jackson.....	Covington.
W. Youtsey.....	Troy.
The Tippecanoe Building and Manufacturing Co.....	Tippecanoe City.
<i>Montgomery County.</i>	
The Lewis and Talbot Stone Co.....	Dayton.
D. P. Oram, R. R. No. 3.....	Dayton.
J. McLain Smith.....	Dayton.
Theo. Julick, R. R. No. 4.....	Dayton.
H. B. Shoup, R. R. No. 3.....	Dayton.
J. Seybould, R. R. No. 9.....	Dayton.
James Manuel.....	Centerville.
H. M. Evans.....	Englewood.
Wm. Martindale.....	Union.
Phillip Weaver (idle).....	Farmersville.
A. J. Shaffer.....	Brooksville.
Henry Troutman, R. R. No. 1.....	Brooksville.
Daniel Yost (idle).....	Dayton.
David Shaw (idle).....	Union.
<i>Muskingum County.</i>	
R. E. Cowden (idle).....	Dresden.
<i>Mercer County.</i>	
Emil Wagner.....	Ft. Recovery.
<i>Ottawa County.</i>	
Toledo White Lime Co.....	Clay Center.
The Ottawa Lime and Cement Co.....	Toledo.
Dr. Jos. Kingham.....	Rocky Ridge.
Kelley Island Lime and Transport Co.....	Cleveland.
James Duncan (idle).....	Toledo.

LIMESTONE MINES AND QUARRIES — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Paulding County.</i>	
Reason Johnson, R. R. No. 6.....	Defiance.
John McDorman	Roselms.
J. B. Carey & Son.....	Scotts.
S. S. Shisler (idle).....	Oakwood.
<i>Perry County.</i>	
David Hardy (idle).....	Maxville.
<i>Pickaway County.</i>	
Mrs. Bell Z. McCoy.....	Circleville.
<i>Pike County.</i>	
G. W. Nace (idle).....	Sinking Springs.
<i>Preble County.</i>	
J. H. Kilough.....	College Corners.
F. A. Ridenour	College Corners.
O. M. Weight.....	College Corners.
James Saylor (idle)	Eaton.
Jas. A. Kautz & Co.....	Eaton.
H. C. Foster	Lewisburgh.
F. J. Wilson & Co.....	College Corners.
John A. Elliott (idle).....	College Corners.
Nathan C. Sloan (idle)	Morning Sun.
Peter Foutz	Camden.
Simon Parks	Eaton.
G. W. Mann (idle).....	Morning Sun.
Richard Danity	New Paris.
D. & W. Traction.....	Dayton.
New Paris & Richmond Stone Co. (idle).....	Richmond, Ind.
Noah Nill	West Alexandria.
<i>Putnam County.</i>	
George Doriot	Pandora.
T. W. Thomas	Rimer.
J. J. Guffy.....	Rimer.
Ft. Jennings Stone Co	Ft. Jennings.
Nicholas Laner	Ottoville.
Samuel Myers	Drusilla.
Fred Seyer (idle)	Gilboa.
David P. Shoemaker.....	Bluffton.
<i>Ross County.</i>	
Recker Stone Co.....	Greenfield.

LIMESTONE MINES AND QUARRIES — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Sandusky County.</i>	
Gottron Bros.	Fremont.
A. R. Corser (idle).....	Fremont.
B. Saner	Fremont.
Standard Lime Co.....	Gibsonburg.
Woodville White Lime Co.....	Woodville.
George Zeller	Maumee.
<i>Seneca County.</i>	
E. H. France.....	Bloomville.
Fred Seivert	Bloomville.
Weott Brothers	Tiffin.
Tiffin Lime, Building and Sandstone Co.....	Tiffin.
The McCullum Lime Co.....	Tiffin.
P. L. Van Alstyne.....	Fostoria.
Dougherty & Co.....	Toledo.
Fred Harpster	Flat Rock.
Armstrong & Hershberger.....	Republic.
Mrs. Jacob Vogt (idle).....	Scipio Siding.
Wolf & Dick	Flat Rock.
S. A. Saul.....	Bloomville.
<i>Stark County.</i>	
E. C. Boosinger	Brimfield.
Bert Clapsaddle	Marlboro.
Maple Springs Lime and Coal Co.....	Cleveland.
Diomand Portland Cement Co.....	Middlebranch.
Seaman Plaster Co.....	Canton.
F. Fleims	Waco.
<i>Scioto County.</i>	
Clare Iron Co.....	Bloom Switch.
Morgan & Horton.....	Eifort.
M. A. Clutts	Eifort.
<i>Tuscarawas County.</i>	
Robinson Clay Product Co.....	Canal Dover.
<i>Trumbull County.</i>	
Sharon Fire Brick Co. (idle).....	Sharon, Pa.
<i>Van Wert County.</i>	
B. F. Leslie	Convoy.
E. H. France.....	Bloomville.
Wm. J. Semple	Van Wert.
J. B. Carey	Scott.
Clover Leaf Stone Co.....	Van Wert.
France & Ireland	Van Wert.
J. W. Eowersock & Co.....	Wetsel.

LIMESTONE MINES AND QUARRIES — Concluded.

Name of Owner or Operator.	P. O. Address.
<i>Vinton County.</i>	
Cornelia Mining Co.....	Wellston.
Alma Cement Co.	Oreton.
<i>Wood County.</i>	
Dougherty & Co. (idle).....	Toledo.
The Lime City Co. (idle).....	Toledo.
N. B. Eddy & Co.....	Lucky.
Snowflake Lime Co. (idle).....	Bowling Green.
Urschell Lime Co.....	Sugar Ridge.
C. J. Miller & Co., Chamber of Commerce.....	Toledo.
Miller, Jones & Co., 53 Ridge St.....	Bowling Green.
George E. Mercer	Bowling Green.
H. P. Meyer	Hammansburgh.
George Zeller	Maumee.

FIRE CLAY MINES.

Name of Owner or Operator.	P. O. Address.
<i>Athens County.</i>	
Nelsonville Sewer Pipe Co.....	Nelsonville.
Athens Brick Co.....	Athens.
<i>Carroll County.</i>	
Minerva Paving Brick Co.....	Minerva.
Malvern Fire Clay Co.....	Malvern.
Greer-Beatty Fire Clay Co.....	Magnolia.
Robinson Clay Product Co.....	Akron.
Seaman Plaster Co.....	Canton.
National Fire Proofing Co.....	East Palestine.
Big Four Clay Co.....	Malvern.
<i>Columbiana County.</i>	
Michael Murphy	East Liverpool.
Vulcan Clay Co.....	Wellsville.
Columbia Fire Clay Co.....	Cleveland.
Deveny-Kirk Coal Co.....	Salineville.
Champion Clay Co.....	Wellsville.
Card & Prosser Coal Co.....	Lisbon.
National Fire Proofing Co.....	East Palestine..
Negley Clay Co.....	Negley.
Norris Mining and Manufacturing Co.....	Pittsburgh, Pa.
McLain Fire Brick Co.....	Wellsville.
American Sewer Pipe Co.....	Pittsburgh, Pa..
<i>Guernsey County.</i>	
Guernsey Brick and Construction Co.....	Cambridge.
<i>Hocking County.</i>	
Columbus Brick and Terra Cotta Co.....	Columbus.
Logan Brick Manufacturing Co.....	Logan.
Joe Bartholomew	Logan.
The Haydenville Co.....	Haydenville.
<i>Holmes County.</i>	
Millersburg Brick and Tile Co.....	Millersburg.
Redett & Sons.....	Fredericksburg.
<i>Jackson County.</i>	
Ohio Fire Brick Co.....	Oak Hill.
Oak Hill Fire Brick and Coal Co.....	Oak Hill.
<i>Jefferson County.</i>	
Minor Fire Brick Co.....	Empire.
Stratton Fire Clay Co.....	Empire.
Toronto Fire Clay Co.....	Toronto.
Adolph Pritschaw	Irondale.
Standard Fire Brick Co.....	Empire.
East Ohio River Sewer Pipe Co.....	Irondale.
Myers Clay Manufacturing Co.....	Toronto.
American Sewer Pipe Co.....	Pittsburg, Pa..

FIRE CLAY MINES — Continued.

Name of Owner or Operator:	P. O. Address.
<i>Lawrence County.</i>	
Hanging Rock Iron Co.....	Hanging Rock.
E. B. Willard	Steece.
Black Fork Coal Co.....	Black Fork.
<i>Mahoning County.</i>	
Greenford Fire Clay Co.....	Greenford.
M. J. Dustman	Berlin Center.
Garfield Brick Co. (idle).....	Alliance.
Robert Auld & Son.....	Salem.
<i>Muskingum County.</i>	
Chauncey Ford	Roseville.
South Zanesville Sewer Pipe and Brick Co.....	South Zanesville.
S. M. Stump	Zanesville.
William Bunting (idle)	Zanesville.
George Milhollin	Hopewell.
A. Emery	Zanesville.
American Sand Co.....	Columbus.
W. H. Weller	Zanesville.
<i>Perry County.</i>	
Solomon Hightshoe	Somerset.
New Lexington Pressed Brick Co.....	New Lexington.
Ohio Mining and Manufacturing Co.....	Shawnee.
H. E. Stoneburner	Crooksville.
Iron Clay Brick Co.....	Shawnee.
<i>Scioto County.</i>	
Portsmouth Harbison Walker Co.....	Portsmouth.
Scioto Fire Brick Co.....	Sciotoville.
Morgan & Horton (idle).....	Eifort.
W. E. Ketler	Lilly.
M. A. Clatts	Eifort.
<i>Stark County.</i>	
Massillon Stone and Fire Brick Co.....	Massillon.
Louisville Brick and Tile Co.....	Louisville.
Diamond Portland Cement Co.....	Middlebranch.
Keim Brick and Tile Co.....	Louisville.
Federal Clay Product Co.....	Mineral City.
Whittacre Fire Proofing Co.....	Waynesburg.
The Everhard Co.....	Massillon.
National Fire Proofing Co.....	Canton.
Seaman Plaster Co.....	Canton.
H. B. Camp Co.....	Pittsburg, Pa.

FIRE CLAY MINES — Concluded.

Name of Owner or Operator.	P. O. Address.
<i>Summit County.</i>	
Myers & Lloyd (idle).....	Mogadore.
H. I. Swinehart.....	East Akron.
J. Stettler (idle).....	East Akron.
Akron Clay Co.....	Akron.
Akron Roofing Tile Co.....	Akron.
Robinson Clay Product Co.....	Akron.
American Sewer Pipe Co.....	Pittsburg, Pa.
H. B. Camp Co.....	Pittsburg, Pa.
<i>Trumbull County.</i>	
Sharon Fire Brick Co.....	Sharon, Pa.
<i>Tuscarawas County.</i>	
Buckeye Fire Clay Co.....	Uhrichsville.
Advance Fire Clay Co.....	Uhrichsville.
Dover Fire Brick Co.....	Strasburgh.
C. E. Holden.....	Mineral City.
George J. Markley.....	Mineral City.
J. J. Cristern & Sons.....	Baltic.
Paul Clay Co.....	Akron.
The Federal Clay Product Co.....	Mineral City.
Robison Clay Product Co.....	Akron.
Globe Clay Works.....	Newcomerstown.
Robinson-Graves Sewer Pipe Co.....	Uhrichsville.
Novelty Brick and Coal Co.....	Newcomerstown.
American Sewer Pipe Co.....	Pittsburg, Pa.
<i>Vinton County.</i>	
Jacob Earnhart (idle).....	Hue.
Alma Cement Co.....	Oreton.

NOTICE.

The regular custom of publishing the Mining Laws in the annual report of this Department has been dispensed with, as changes in them are anticipated during the session of the coming General Assembly. The regular mining laws may be had in pamphlet form free of charge by addressing this Department.

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Chief Inspector of Mines

Thirty-First Annual Report

*To the Governor of
the State of Ohio
for the Calendar Year*

1905

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Chief Inspector of Mines

Thirty-First Annual Report

*To the Governor of
the State of Ohio
for the Calendar Year*

1905

Thirty-First Annual Report

OF THE

Chief Inspector of Mines

TO THE

Governor of the State of Ohio

FOR THE

Year Ending December 31, 1905

GEORGE HARRISON
CHIEF INSPECTOR OF MINES
COLUMBUS, OHIO



COLUMBUS, OHIO:
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1906.

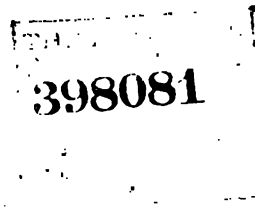


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PERSONNEL OF THE STATE MINING DEPARTMENT FOR THE YEAR 1905.



THOS. P. WANGLER,
Retiring Chief Clerk.

HATTIE MOORE,
Clerk.

GEORGE HARRISON,
Clerk.

MARY KINCAID,
Clerk.

D. H. WILLIAMS,
Clerk.

PERSONNEL OF STATE MINING DEPARTMENT.

Chief Inspector of Mines.

GEO. HARRISON.....Wellston, O.

FIRST DISTRICT.

THOS. WATERS.....Wellston, O.

SECOND DISTRICT.

D. H. WILLIAMS (Resigned May 15, 1905).....Glouster, O.
Succeeded by Jno. L. McDonald, Glouster, O., May 16, 1905.

THIRD DISTRICT.

LUCIUS W. HULL (Resigned Jan. 22, 1905).....Murray, O.
Succeeded by John T. Dolan, Murray, Ohio, January 24, 1905, resigned
March 15, 1905.
Succeeded by James Pritchard, Hemlock, O., March 17, 1905.

FOURTH DISTRICT.

THOS. MCGOUGH.....Bridgeport, O.

FIFTH DISTRICT.

W. H. TURNER.....Cambridge, O.

SIXTH DISTRICT.

JAS. P. DAVIS (Resigned Dec. 1, 1905).....Salem, O.

SEVENTH DISTRICT

W. H. MILLER.....Massillon, O.

Chief Clerk (Resigned Dec. 31, 1905).....THOS. P. WANGLER Columbus, O.
Succeeded by Wm. H. Werker, Mineral City, Ohio.

Corresponding Secretary.....MARY KINCAID, Columbus, O.

Assistant Clerk.....HATTIE MCGHEE, Columbus, O.

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LETTER OF TRANSMITTAL,

HON. ANDREW L. HARRIS, *Governor of Ohio.*

HON. SIR: In accordance with the provisions of the Mining Laws contained in Section Two Hundred and Ninety-three (293) of the Revised Statutes, I have the honor of submitting to you the Thirty-first Annual Report of this Department.

As suggested in our report for the year 1904, the statistical portion, as well as the detailed description of mines, accidents, et cetera, of this report has been compiled to conform to the Calendar Year 1905.

Hoping the change will prove beneficial to those interested in the Industry, and lead to less confusion than when the report was compiled on a calendar and fiscal year basis, we remain,

Very truly yours,

GEO. HARRISON,

Chief Inspector of Mines.

Columbus, Ohio, July 12th, 1906.

REPORT OF CHIEF INSPECTOR.

COLUMBUS, OHIO, July 12, 1906.

HON. ANDREW L. HARRIS, *Governor of Ohio.*

SIR: We herewith submit to you the Thirty-First Annual Report of the State Mining Department. The year covered by this report was one of universal prosperity in the Mining Industry, and the State of Ohio has taken no backward step, the returns for the year showing an increase of over a million and a quarter tons of coal mined as compared with the preceding year.

The number of fatal accidents, while still greater in our estimation than necessary, if proper precautions were taken, show a decrease of eight per cent. (8%), as compared with the year 1903, the year previous to our appointment, while the tonnage increased in point of production five per cent. (5%). The accidents for the year 1904 as compared with 1903, show a decrease of five per cent. (5%), and the tonnage an increase of 4/1000%.

In our report for the year 1904, submitted to Governor Myron T. Herrick, we recommended that the present Mining Laws be revised to meet the present and changed conditions of mining, and that a Commission be appointed by the Governor to take up the subject and work it out in detail to be submitted for the consideration of the General Assembly, which would meet in January, 1906.

At the request of Governor Myron T. Herrick, Attorney General Wade H. Ellis, his Assistant, W. H. Miller, Jas. P. Davis, and Thos. McGough, District Mine Inspectors, and myself, visited a number of mines in Eastern Ohio, for the purpose of investigating the general conditions under which the mines of the present day are operated as compared with those existing at the time when the first Mining Laws were placed on the statute books.

These conditions were commented upon in a communication which we submitted to the Governor previous to his message to the General Assembly, January 1, 1906, in which he calls attention to the needed revision of the Mining Laws of the State in the following paragraph:

"The Chief Inspector of Mines having suggested in his annual report an investigation of the present mining conditions of the State and the laws governing same, I requested the Inspector and the Attorney General to make such investigation and report to the Executive for transmission to the General Assembly. The Attorney General and the Chief Inspector of Mines made a personal inspection

of the principal mining districts of the State, and in communications to the Governor report that the principal causes of injuries and loss of life incident to the present method of mining result from the use of electric motor cars and live wires throughout the mines, as well as the operation of machinery by compressed air in cutting coal. It is found that there are no laws now governing the use of electricity in the operation of mines, and that the statutes on the subject of mining have become obsolete and inapplicable, except to the old methods, which are now long out of use.

I recommend that this matter be given attention, and that additional legislation be passed to protect life and property in the mines in the State, insofar as the same is required by the modern methods employed in such industries."

At the time of filing this report we regret to say that the legislature adjourned without enacting any mining legislation of any consequence, and on account of the indisposition of Governor Pattison, who succeeded Governor Myron T. Herrick, this Department was unable to consult with him on this important matter, and conditions remained practically the same as before. Whether a future Legislature will see fit to take this matter up which is of such vital importance to the lives of the men employed in the Coal Industry remains to be seen.

During the year 1905, the State of Ohio suffered the loss of one of its most prominent Ex-Chief Mine Inspectors, Hon. R. M. Haseltine. His death occurred while on a pleasure trip in Yellow Stone Park on September 9, 1905, and was a great shock to his many admiring friends,—a distinct loss to the interests of mining in general,—he being not only a civil and mining engineer of wide reputation, but a consulting one as well, a position he was well qualified to fill owing to his experience and practical knowledge of the Mining Industry in all its various phases. He was appointed Chief Inspector of Mines by Ex-Governor J. B. Foraker, on April 1, 1888, which position he held for a period of twelve years with marked success. At the time of his appointment the Mining Department was practically in its infancy, and to his executive ability, untiring energy, and devotion to duty, he built it up until it became the pride of the State and not only one of great importance to the persons employed in the mines, but to the Industry in its broadest sense.

The Department attended the obsequies at Youngstown in a body in respect to his memory and the honor which was his due as one of the Heads of the Department for so many years, and we have caused a likeness of him to be printed in this report, accompanied by a short biography of his life furnished us by persons who knew him best.

The Department also suffered the loss of five of its efficient force during the year 1905. Mr. L. W. Hull, Inspector of the Third Mining District, tendered his resignation to the Department on January 22, which was accepted, and Mr. Jno. T. Dolan, Murray, Hocking County, Ohio, was appointed to take his place, holding the position only a short time, when he resigned on account of his indisposition and inability to

ANNUAL REPORT

actively assume the duties of the office. This necessitated the appointment of another Inspector, and Jas. Pritchard, Hemlock, Perry County, Ohio, was named as his successor. D. H. Williams, Inspector of the Second Mining District, tendered his resignation to take effect March 16, 1905, to accept a more lucrative position as Superintendent of a number of the Sunday Creek Coal Co.'s mines. On Dec. 1, Jas. P. Davis, Inspector in the Sixth Mining District, tendered his resignation to accept the position of Superintendent of mines operated by the Morris Coal Co., Cambridge, O. Thus the Department was called upon for the second time during the year to accept the resignation of Inspectors who severed their connections with it by taking advantage of the opportunity to better themselves and accept positions which offered them greater remuneration, and which their experience, gained largely by their connection with this Department, was probably due.

We would be glad to see the General Assembly increase the salaries of the Inspectors, so that when they once become proficient in their work, the salaries offered them outside of it would not be so much of an inducement, and the state would thereby be the gainer in being able to retain Inspectors thoroughly qualified to fill their positions. It requires at least two years for an Inspector to thoroughly become acquainted with his district and to gain a comprehensive knowledge of the mines, conditions surrounding them, and those operating and managing mines. When he has reached the point where he has really become a valuable adjunct to the Department, positions with greater promise are often extended him, and no blame can be attached when they are accepted.

Another loss suffered by the Department was that of the services of Mr. Thos. P. Wangler, Chief Clerk, Columbus, Ohio, who also accepted a more promising position with an Insurance Company. He was succeeded by Mr. Wm. Werker, Mineral City, Tuscarawas County, O., who, at the time of his appointment, was holding the position of President of Sub-District No. 5 of District No. 6, of the U. M. W. of A., and to his energy, ability and painstaking care, the full and complete statistical tables on the coal and other industries coming under this Department are due. His practical knowledge of the mining industry, from a miner's standpoint, and observations and experiences afforded him as an officer of the United Mine Workers, render him peculiarly fitted for the position.

To the efficient effort and loyal support of the policy of this Department on the part of the District Mine Inspectors and office force, the improved conditions of the mines and standing of the Department is due, and we gladly avail ourselves of this opportunity to publicly show our appreciation of the same.

For the many courtesies and kind consideration shown the Department during the year by the Administration that was in office during

the time covered by this report, we desire to express our sincere appreciation.

Very sincerely yours,

GEO. HARRISON,

Chief Inspector of Mines.

SUMMARY AND COMPARISON FOR THE YEARS
1904 AND 1905.

	1904.	1905.
Number of pick miners employed.....	13,346	10,445
Number of drillers, shooters and loaders.....	17,432	19,299
Number of hands operating machines.....	2,297	2,620
Number of day hands employed.....	12,759	11,829
Total number of persons engaged in the production of coal.....	45,834	44,193
Average number days pick miners worked.....	159	169
Average number days machine miners worked.....	169	169
Average number days machine cutters worked.....	171	173
Number tons of coal produced by pick.....	8,037,360	6,825,125
Number tons of coal produced by machinery.....	16,546,455	19,009,532
Total number of tons produced.....	24,583,815	25,834,657
Gain in output over the year 1904.....		1,250,842
Per cent. of pick-mined coal.....	32.7%	26%
Per cent. of machine-mined coal.....	67.3%	74%
Number of coal producing counties.....	29	29
Average number tons lump coal produced by pick miners per day.....	2.6	2.58
Average number tons lump coal produced by pick miners per year.....	410	435
Average number tons lump coal produced by drillers, shooters and loaders per day.....	4	4.06
Average number tons lump coal produced by drillers, shooters and loaders per year.....	684	686
Average number tons lump coal produced by machine cutters per day.....	30	29.1
Average number tons lump coal produced by machine cutters per year.....	5,188	5,053
Number of fatal accidents.....	118	114
Number of serious accidents.....	316	372
Number of minor accidents.....	121	171
Total number of casualties.....	555	657
Per cent. of deaths per thousand employed.....	2.57%	2.58%
Serious injuries per thousand employed.....	6.89%	8.42%
Minor injuries per thousand employed.....	2.64%	3.87%
Number tons coal mined for each life lost.....	208,337	226,628
Number of persons employed for each life lost.....	388	388
Number of persons employed for each serious accident.....	145	119
Number of persons employed for each minor accident.....	379	258
Number of kegs of powder used as reported.....	264,714	246,777
Total number of new mines opened.....	101	42
Number of large mines suspending operation.....	57	50
Number of large mines reported abandoned.....	37	33
Total number of mines in operation.....	959	881
Total number of small mines suspended or abandoned.....		78
Number of mines in which machines are used.....	243	235
Number of motors in use.....	186	214
Number of mining machines in use.....	975	1,146
Total number of inspections made.....	1,789	1,708
Number of sets of scales tested.....	230	225
Number of permanent improvements made.....	257	290
Number of maps filed.....	341	382
Total tons of fire clay produced.....	2,045,848	2,039,292
Number of fire clay producing counties.....	18	19
Number of persons employed producing fire clay.....	1,147	1,360
Average number of days worked for year.....	248	276
Number of counties producing limestone.....	36	35

SUMMARY AND COMPARISON FOR THE YEARS 1904 AND
1905 — Concluded.

	1904.	1905.
Number of persons employed in the production of lime- stone	3,976	4,728
Average number of days worked for year.....	229	245

NOTE. — This department will henceforth classify all mines with more than one opening, and having but one tipple, as one mine.

ROBERT MONTGOMERY HASELTINE

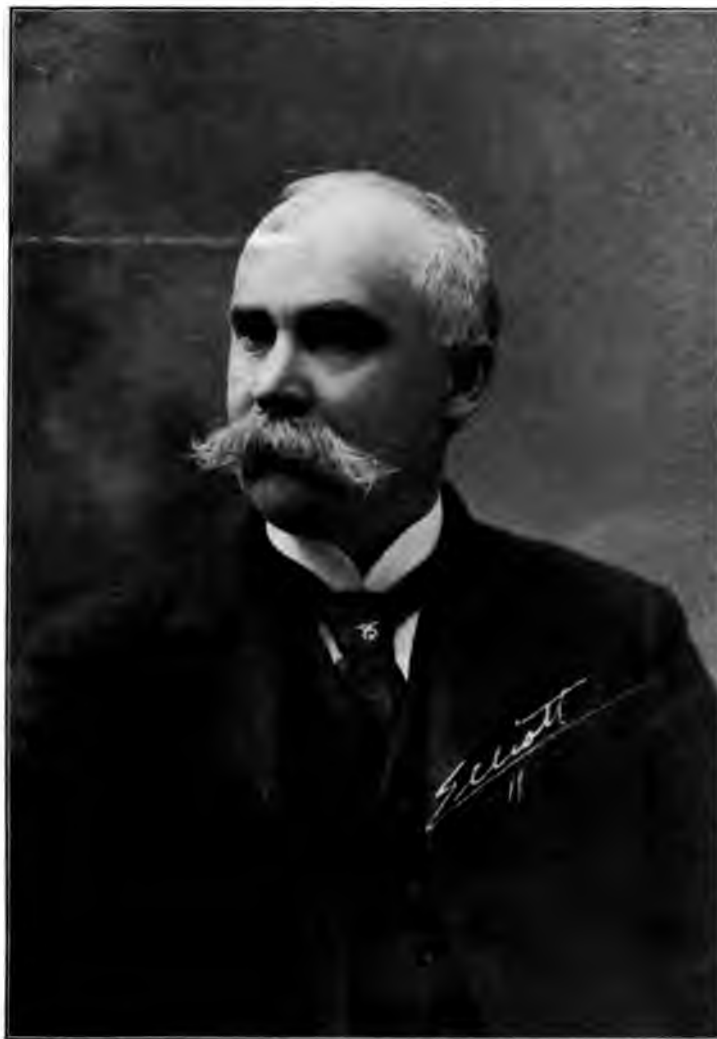
was born on March 11th, 1846. It was in a log cabin, standing in a strip of primeval forest, and just outside the limits of what is now the town of Haselton, so called in honor of the family, that the subject of this sketch first saw the light of day. This village, consisting then of two or three houses, became later a prosperous town in the heart of one of our busiest iron and steel centers, and was absorbed by the city of Youngstown just a few years ago. These facts are mentioned, as they relate to a set of industrial conditions which occupied a prominent place in the interest of Mr. Haseltine as a young man, and were, without doubt, quite influential in molding his career.

On his paternal side, Mr. Haseltine came from sturdy New England Yankee stock; his father, a physician by profession, having come from Suncook, New Hampshire. On his mother's side, he was descended from a distinguished race of pioneers and patriots—the Montgomeries—in which line are blended strains of a number of the prominent families of American history. Edwards, Dwight, Emory, Burr, Morris, and Stoddard are some of them.

In these collateral lines there is to be found a tendency toward literature and statesmanship, but the Montgomeries leaned more toward technical, engineering, and scientific pursuits. So we find that one of Mr. Haseltine's progenitors was Surveyor General for the state of Pennsylvania, and another built and operated near Struthers, Ohio, a small blast furnace for making iron, as far back as the very beginning of the eighteenth century. So it is likely that it was from this side of the family that Mr. Haseltine inherited his strong liking for work of a technical and engineering nature.

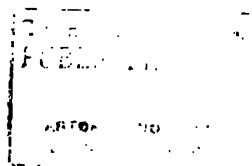
The Haseltine family lived upon a large farm, and Mr. Haseltine's early life was that of the average farmer's boy, until the death of his father, placed him at the age of fifteen at the head of the family, just at the beginning of the Civil War. He conducted the affairs of the family amid much hardship and privation, meanwhile picking up a very fragmentary education in the country schools, the Poland Seminary; the finishing touches being received in a few months' attendance at a Chicago Polytechnic School. It was a very meager training for the work which he was called upon to do later in life, and this lack of early education was one of the great regrets of his life, as it prevented him from realizing more fully the possibilities of his profession.

He was about twenty-two years of age when he began in an imperfect and toilsome way to practice his profession as a Civil Engineer. But Youngstown lay in the heart of "The block coal," as it was called, while



HON. R. M. HASELTINE, *Ex-Chief Mine Inspector.*

Born March 11, 1846 — Died September 9, 1905.



near by was the great Massillon Field, and it was not many years before Mr Haseltine found that most of his work was in the line of Mining Engineering. For this class of work, he developed a great fondness and he came later to regard it at his specialty, giving almost his entire time to the study and practice of it.

He had worked at his profession almost twenty years, when in 1888, he was appointed by Gov. J. B. Foraker as Chief Inspector of Mines of Ohio, to serve out the remaining month of the unexpired term of Mr. Thomas B. Bancroft. Mr. Haseltine was then appointed for a full term of four years, and was reappointed by Govs. McKinley and Bushnell, making a total service in the position of twelve years and one month.

In 1892, while he was still Chief Inspector of Mines, he was selected by the Legislature to design and install Ohio's mineral exhibit at the World's Columbian Exposition at Chicago.

It was a work of prodigious labor, and one that required his utmost resourcefulness. The exhibit was one of great beauty, reflecting much honor upon the state and adding greatly to Mr. Haseltine's personal reputation.

Shortly after his assumption of the duties of Chief Mine Inspector, he became identified with the Ohio Institute of Mining Engineers. The value of such an organization in developing a greater unity in the mining profession, and in carrying to a higher degree the efficiency of its numbers, always strongly appealed to him. He served first as the President of the Institute, and later as its secretary and treasurer, which position he held until his death.

Mr. Haseltine felt from the beginning a great interest in coal cutting machinery, both from a mechanical and industrial standpoint, and he gave the subject quite a little study and investigation. On a number of occasions, he published in his reports and in the technical press, articles, giving much practical information collated from his researches.

In 1900, he left the department, having finished his third term, and became engaged as a consulting engineer—a work for which his long experience had admirably fitted him. His labors from this time forth consisted in making reports on mining properties, developing new mines, and work of that nature.

During this period he did some special expert work for the Department of the Interior, for which he received the title of "Special Coal Expert of the United States Geological Survey."

He also found an opportunity at this time to complete his stratigraphical chart. This was a map showing the names and extent, and order of sequence of the fire clay, coal, iron ore and limestone veins of Ohio, Pennsylvania, West Virginia, Maryland and Eastern Kentucky. This information was based to a great extent upon personal observation, extending over his entire professional career.

Mr. Haseltine's death occurred on Sept. 9, 1905, while he was tour-

ing Yellowstone National Park. The immediate cause of his death was a stroke of apoplexy, which was believed to have been induced by the exertions of the journey, and the rarity of the atmosphere. It seems to have been a repetition of a lighter stroke which occurred about four years before, and from which he never fully recovered.

In summarizing his life's work, undoubtedly his administration of the affairs of the mining department should receive first mention. In this position, he felt perfectly at home, and without a doubt, considered that here he did the best work of his life. There are few positions which require a greater versatility. The work presents many and varied sides—the technical, the administrative, the executive, the legal, the industrial, and the economic. There is required an ability of a higher order if the work is to be done well. In no respect did he fall short of the demands made upon him. He kept up the organization of the department to meet the constantly increasing requirements of the industry, he pushed through the Legislature, often against much opposition, new measures to take care of the changing industrial conditions, and he administered the law with firmness and equity. He was tireless in his industry and faithful and true to his duty at any cost.

No man could have been happier in his profession. He loved the work in all its phases, and felt in perfect sympathy with it and with the men with which it brought him in contact. Although he was above all things else practical, there was in him a sort of sturdy idealism which seemed always to stimulate his ambition to still more perfect accomplishments.

So active had been his life, and so heavy his responsibilities that he had not had much opportunity to cultivate a taste for the finer arts, and so the pleasures of literature, music, and art did not appeal specially to him. But these accomplishments had been replaced by a boundless love of humanity, and an all absorbing interest in life and in the progress of the world, and in the deeds of men. The beauty of nature he held in a reverence that was almost a religion, and it was perhaps fitting that his last hours should have been passed amid the grandeur of one of the most sublime of nature's shrines.

He enjoyed a far reaching acquaintance among the men of his profession, and as he touched life from many angles, it is probable that he will be most widely remembered for his social qualities. He rarely forgot a name, and still more rarely a face, and he found great delight in going about among his friends and business associates, renewing old acquaintanceships and making new ones. No man was more democratic. He harmonized perfectly with men of all kinds and conditions. He loved good company, and his native buoyancy, his ever ready wit, and his rare charm of personality made him always welcome.

His dominant trait was his boundless sympathy which sprang spon-

taneously from the unselfishness of his nature and his deep love of mankind.

And successful as his life was in a professional way, his memory will doubtless be preserved longest by those who knew him on the side of his sensibilities and had felt his sympathy. His name is written with that of Abou Ben Adhem in the Book of Gold—with those who loved their fellow men.

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SPECIAL ARTICLES
AND
RULINGS OF THE ATTORNEY
GENERAL.

(19)

SPECIAL ARTICLES AND RULINGS OF THE ATTORNEY-
GENERAL.

STATE MINING DEPARTMENT.

COLUMBUS, OHIO, February 14, 1905.

HON. WADE H. ELLIS, *Attorney General State of Ohio.*

DEAR SIR:— This department desires and would be very much pleased to have, at your earliest convenience, your opinion and ruling on Section 297 of the Mining Laws of the State which applies to "Second Openings" in mines.

First. — "If a shaft opening is made to any seam of coal, and the same seam of coal is not penetrated by any other opening which can be made available as a second opening, is it the meaning of the first clause of Section 297 that it is unlawful to permit any person to work therein, or in other words, is it necessary that in shaft mines two (2) openings must reach the coal seam intended to be worked before any person can be lawfully employed for the general production of coal?"

Second. — "Can persons be employed only for the purpose of making communication between two (2) openings, and not more than twenty (20) be employed therein at one time?"

Third. — How long can shaft openings be permitted to operate without any communication between a first and second opening?"

Any information or opinion on the legal technicalities in this Section will be highly appreciated.

Very truly yours,

GEO. HARRISON,
Chief Inspector of Mines.

COLUMBUS, OHIO, February 27, 1905.

HON. GEO. HARRISON, *Chief Inspector of Mines, Columbus, Ohio.*

DEAR SIR:— Your communication dated February 14, 1905, relative to the construction to be placed upon Section 297 of the Mining Laws as to "Second Openings," is received. You submit the following questions:

First. — "If a shaft opening is made to any seam of coal, and the same seam of coal is not penetrated by any other opening which can be made available as a second opening, is it the meaning of the first clause of Section 297, that it is unlawful to permit any person to work therein, or in other words, is it necessary that in shaft mines two (2) openings must reach the coal seam intended to be worked before any person can lawfully be employed for the general production of coal?"

Second. — "Can persons be employed only for the purpose of making communication between two (2) openings, and not more than twenty (20) be employed therein at any one time?"

Third. — "How long can shaft openings be permitted to operate without any communication between a first and second opening?"

The portion of Section 297 providing for "Second Openings" is as follows:

"It is unlawful for the owner or agent of any coal mine, worked by shaft, to employ or permit any person to work therein, unless there are, to every seam of coal worked in such mine, at least *two separate outlets*, separated by natural strata of not less than one hundred feet in breadth by which shafts or outlets distinct means of egress and ingress are always available to the persons employed in the mine; but it is not necessary for the two outlets to belong to the *same mine* if the persons employed therein have safe, ready and available means of ingress and egress by not less than two openings. This section shall not apply to *opening a new mine while being worked for the purpose of making communication between said two outlets so long as not more than twenty persons are employed at any one time in such mine*, neither shall it apply to any mine or part of mine in which the second outlet has been rendered unavailable by reason of the final robbing of pillars previous to abandonment, so long as not more than twenty persons are employed therein at any one time."

You will observe from the above language that two separate outlets are required to every seam of coal worked in each mine, to be separated by natural strata of not less than one hundred feet in breadth, and that it is unlawful for the owner or agent of said mine to employ or permit any person to work therein, without said outlets for the general production of coal.

In case a new mine is opened up, it is lawful to employ not more than twenty persons for the purpose of making communication between the "Openings" and this section places no limitation upon the time said men are to be employed in making said communication.

Shaft openings without communication between cannot be operated at all for the general production of coal, but can only be worked for the purpose of providing a communication between the "Openings," and then the number employed is limited to twenty persons.

Very truly yours,

W. H. ELLIS,

Attorney General.

STATE MINING DEPARTMENT.

COLUMBUS, OHIO, February 15, 1905.

To Manufacturers and Dealers in Lard and Cotton Seed Oil for Illuminating Purposes in Mines in the State of Ohio.

GENTLEMEN: — For some time the major portion of the lard and cotton seed oil used in mines of the State for illuminating purposes has been of a very inferior quality, and much complaint has been made about it. We have just made very careful tests of a number of samples taken direct from barrels supplied by some of the leading manufacturers of miner's oil, and find that it will not anything like stand the gravity or smoke test guaranteeing its fitness for use in the mines as required by law.

The District Mine Inspectors have not been, and cannot well be, supplied

with the proper instruments and facilities for making satisfactory tests of oil in their regular visits to the mines, and this fact, we have reason to believe, has been taken advantage of by some shippers of oil labelling their barrels up to the requirements of the law when they knew the oil they contained would not stand the legal test.

Notwithstanding that violators of law have no right to expect any leniency, we have no desire to make a general raid on oil that has already reached the retail dealer, or is in transit, but we have made arrangements with all the District Mine Inspectors to fill two (2) half pint bottles with oil taken from a barrel not previously opened, cork and seal them with the seal of this department, in the presence of the retail dealer, both to be properly labeled with the name of the shipper, dates of shipment and other particulars, one to be sent to this office for minute analysis, and the other to be held by the retail dealer and produced in case of necessary prosecution against any shipper of inferior oil for use in the mines coming under the jurisdiction of this department.

All oil bearing date of shipment after this date, February 15, 1905, will be subject to the above arrangements, and the closest scrutiny of this department, not however, exempting oil shipped previous to this date from regular test and analysis.

Very truly yours,

GEO. HARRISON,

Chief Inspector of Mines.

MINER'S LAMP OIL.

For a number of years this Department seems to have drifted away from devoting any serious attention to the question of Miner's Oil, and the Inspectors had ceased to make regular tests, finding it very difficult and inconvenient to do so owing to the lack of proper facilities at the points where oil was retailed to miners. In consequence of this, oil manufacturers began to take advantage, and the gravity, instead of being kept at 24 degrees required by law, in some instances, was found to be as high as 30 degrees, yet notwithstanding the extraordinary flame and scorching smoke from their lamps resulting from this high gravity, the miners were still dissatisfied, and it was found that they would purchase a half gallon each of light carbon oil, and what was sold for miner's lard oil, mixing the two together for illuminating purposes in the mines.

On February 15th, the above general circular letter was sent to the oil companies, and the Department began to take samples as already stated in the circular letter issued. For a time the oil seemed to be improved, but from general tests made by the Inspection Force at this office from time to time, it was ascertained that the oil was being mixed with an inferior grade of Texas oil, which had the property of retaining the low gravity, but gave a very high smoke test, which is very injurious to persons inhaling it, and the close of the year finds the Department engaged in a controversy with the oil men with a determination to either have pure oil or institute proceedings in court against offenders and evaders of the law.

If necessary this Department will also prosecute retail dealers for supplying impure oil, and miners for adulterating it or for using other than legal test oil in their mine lamps.

STATE MINING DEPARTMENT.

COLUMBUS, OHIO, May 23, 1905.

The New Pittsburg Coal Co., Columbus, Ohio.

DEAR SIRs:—By letter of the 10th inst., from Mr. Samuel Devault, President, and Mr. Robert Sharp, Secretary, of the Miner's Union at your No. 6 or Cawthorn Mine, at Monday, Hocking County, Ohio, we were advised that those in charge of the mine had prepared places and requested a number of the miners to commence work in a portion of the territory of that property where the roof was of such a nature as to be extremely unsafe, and which had been abandoned for that cause many years ago. The letter further stated that to avoid a strike other places had been given to the men temporarily pending an investigation and report by myself as to the safety or otherwise of such work, and asking me to make such investigation at the earliest possible opportunity.

Realizing that this department was under obligation, and that it was our duty to respond to calls from either operators or miners, and to give such advice and information as we were enabled to do under such circumstances, the writer at once consented to make the investigation and so advised Mr. Devault and Mr. Sharp. But, realizing the responsibility of such an undertaking, and that the finding might mean either the abandonment of quite a portion of your mining property, or very seriously increased dangers to the lives and limbs of your employes, and that such a ruling would very naturally carry with it an important influence and bearing regarding the operation of other mining properties in the State, which might materially affect the interests of other operators and miners as well, we deemed it necessary to have the benefit of the practical experience and judgment of a number of the District Mine Inspectors, and in consequence called on Mr. Thos. Waters of the First District, Mr. John L. McDonald, of the Second District and Mr. Jas. Pritchard of the Third District, in whose district the Cawthorn Mine is located. These inspectors are all practical miners from boyhood and have had experience in bad and dangerous roof of various kinds. We met at the mine on the 16th inst., and attached herewith will be found a report of our investigation, findings and recommendations.

Very respectfully yours,

GEO. HARRISON,
*Chief Inspector of Mines.**To The New Pittsburg Coal Co., Columbus, Ohio.*

GENTLEMEN:—Being called upon to make an investigation and report as to the condition and dangers incident to the working of a portion of the territory in your No. 6 or Cawthorn Mine the roof of which the miners have claimed is exceedingly dangerous, and which they refused to work, we met at the mine on the 16th inst., and in company with your Superintendent, Mr. G. C. Weitzel, Mr. Jos. Slater, mine boss, and Mr. Samuel Devault, President, Mr. Robert Sharp, Secretary, and a Committee of the Miner's Local Union, made a very thorough inspection.

The territory in question is immediately on the east side of the valley in which the tiple is located, along which the coal crops out on the west side of the territory now being operated.

The main opening is a drift started in the point of the hill and driven east and has passed through the faulty roof narrow, having been substantially timbered, and is now the main motor haulway. At a distance of about eight hundred (800)

feet from the mouth of this opening face entries have been started north and south and butt entries turned off them for the purpose of opening rooms which met with little success, as the inability to secure the roof just as quickly as rooms were widened out has compelled their abandonment.

At a distance of sixteen hundred (1600) feet from the mouth of the main east opening face entries are again driven north and south and the interior of the mine has been developed by butt entries being driven east from those face entries; butt entries have also been driven west and rooms worked from them just as far as the roof will permit, and until the dangers and difficulties seem to have been such that miners would no longer risk their lives in them, and by force of such conditions the territory now under controversy was finally abandoned, and which it seems is the disposition of your company to re-open and work the coal west to the crop line both on the north and south side of your main east opening.

We first examined a drift opening a short distance from the main east opening on the south side and which runs parallel with the east opening referred to, and found it overlaid with a very short, soft, rather white, shale, which crumbles down just as fast as the coal is removed, and which cannot be secured even in a narrow entry only by close timbering.

The next place visited was a slope five hundred (500) feet north of the main east opening driven about one hundred and thirty (130) feet through the stratas of the coal; the roof in that was different to that of the drift opening referred to, but was so full of slips, joints and slippery facings that timber would scarcely hold it even in a narrow entry.

We next went into the mine and travelled every place accessible in the first and second main north, first and second west, and third and fourth west entries on the north side of the main east entry and the first and second west and third and fourth west entries on the south side of the main east entry.

It is not necessary to give the details as we found them in every particular; it is sufficient to say that we found a general bad roof, being the most peculiar formation we ever saw overlaying any coal measure. There is from three to five feet of thickness over the coal apparently a conglomeration of various materials such as slate, shale, bone coal, streaks of coal, clay and other substances which seems to have been piled together at intervals in a molten condition, and the whole strata is intersected by joints, slips, seams and pots running in every conceivable direction and making it impossible to drive rooms or wide work in advance and secure an opening for retreat or maintaining anything like safe conditions for those employed therein.

Realizing the importance more than ever of our undertaking, and anxious to find a precedent by which we could be guided, we learned that a large acreage of coal which had been abandoned at the Luhrig mine in Athens County on the claim of bad roof which had been the subject of litigation in the courts of that county, we decided to make an inspection and compare conditions, which, through the courtesy of Mr. A. J. Laverty, Superintendent of the Luhrig Coal Company, we did on the following day, again being accompanied by your Mr. Weitzel and Mr. Slater, and after a full day of examinations of the abandoned territory in this mine, we found the roof there bore no relation to that at the Cawthorn mine so far as danger and difficulty to operate were concerned.

Realizing, too, that men and money can almost accomplish anything we refrain from being placed on record as in any way intimating that this territory of coal in the bad roof at Cawthorn mine in our judgment cannot be mined, neither do we take any part in trying to prevent miners working it, if, after knowing all the facts they choose to assume the extra risks in doing so. We do, however, feel that the miners are justified in declining to assume the extra risks in working in such a roof under the present system of operation, and that if your company

should exercise any undue influence to induce miners to work the territory referred to its liability would be very considerably increased.

Without any desire to criticise the methods or intentions of the management of your mine, we are indeed surprised that your company proposes to take out this coal at the present time laying as it does along the west outcrop of the seam and for sixteen hundred (1600) feet along both sides of your main opening and considering the kind of roof, if you could even mine the coal successfully, the almost inevitable result would be a general squeeze and the destruction and closing of the main haulway of your mine, either causing the abandonment of the whole property or necessitating a re-opening at some other point.

We are fully convinced that this part of your property on account of the bad roof cannot be worked by any ordinary system of advanced mining, unless at a serious loss to those operating it, and exceedingly exceptional danger to those employed in working it, and would advise that the only prudent thing to do is to leave it until the other part of the property is worked out preparatory to the abandonment of the mine, when, if trade conditions will justify, it may possibly be worked on some block or long wall system in retreating, when the difficulties and dangers incident to the bad roof will be left behind and comparative safety guaranteed to the miners.

Very respectfully submitted,

GEO. HARRISON,
Chief Inspector of Mines.

JAS. PRITCHARD, *Inspector 3rd Mining District.*

JNO. L. McDONALD, *Inspector 2nd Mining District.*

THOS. WATERS, *Inspector 1st Mining District.*

STATE MINING DEPARTMENT.

COLUMBUS, OHIO, May 31, 1905.

HON. WADE H. ELLIS, *Attorney General, Columbus, Ohio.*

DEAR SIR:—Section 301 of the Mining Laws of Ohio, provides and directs that all main doors used in mines for the purpose of assisting and directing the ventilation shall have an attendant whose constant duty shall be to open them for transportation and travel, but since the enactment of this measure a number of new devices have been invented, patented and introduced into the mines with a view of displacing the original wooden doors, the major portion of which operate automatically by the use of simple and substantial machinery connected with and intersecting the door and a trip rail with which the wheel of the mine car comes in contact for a safe distance on both sides of the door which it opens, and holds open, until the trip of cars has passed through, when the machinery again adjusts itself, quickly and effectively closing the door.

While a number of these devices are made of canvas, or other light material, they are very substantial and durable. The ventilating current in the mine is much less interrupted or interfered with in the opening and closing of them than by the use of the old doors and the boy attendant. The danger of fatal and serious accidents by trips of cars running into heavy wooden doors, which, through excitement or negligence on part of a careless or irresponsible boy in not opening the door at the proper time, is reduced, rather than increased, by the use of a well arranged automatic door.

All things being considered, this department and all its present force of inspectors are much in favor of such doors in mines, but the question arises, and on which we desire your opinion, is:

First. — "Is an automatic door operated by the travelling of mine cars which are always under control of some engineer, motorman, or mule driver, a fulfillment of the requirements of Section 301, covering the question of doors in mines?"

Second. — "If there is technical objection to an automatic door in mines as provided in Section 301, has this department a right — in the exercise of its discretionary powers given it in the sentence beginning 'The Inspectors,' and ending 'remedied,' in Section 292 — to permit, authorize or advise the use of automatic doors as main doors in mines?"

Your opinion on these points at your earliest opportunity will greatly oblige,
Yours very truly,

GEO. HARRISON,
Chief Inspector of Mines.

STATE OF OHIO, OFFICE OF THE ATTORNEY GENERAL.

COLUMBUS, OHIO, July 8, 1905.

HON. GEO. HARRISON, *Chief Inspector of Mines, Columbus, Ohio.*

DEAR SIR: — Some time ago you requested an opinion from this department concerning the use of automatic main doors in coal mines, under Section 301 of the mining laws. Section 301 provides that

"In all mines, whether they generate fire damp or not, the doors used in assisting or directing ventilation of the mine, shall be so hung or adjusted that they will shut of their own accord and cannot stand open; and all main doors shall have an attendant, whose constant duty shall be to open them for transportation and travel, and prevent them from standing open longer than is necessary for persons or cars to pass through."

There is also contained in Section 292 of the mining laws this provision:

"The inspectors shall exercise a sound discretion in the enforcement of the provisions of this act, and if in any respect (which is not provided against by, or may result from a *rigid enforcement* of any express provisions of this chapter), the inspector find any matter, *thing or practice* in or connected with any such mine, to be dangerous or defective, so as, in his opinion, to threaten or tend to the bodily injury of any person, the inspector may give notice in writing thereof to the owner, agent or manager of the mine, and shall state in such notice the particulars in which he considers such mine, or any part thereof, or any matter, thing or practice to be dangerous or defective, and require the same to be remedied."

Since receiving this request, I have, in company with the Chief Inspector of Mines, visited one of the principal coal mines of the State, and have seen in operation the automatic doors referred to in your request. While Section 301 provides that an attendant shall be placed at all main doors, it also contains provision that said doors shall be so hung, or adjusted, that they will shut of their

own accord and cannot stand open, and designates as the duty of the attendant to open those doors for transportation and travel. The automatic doors used are not only hung and adjusted so that they will shut of their own accord, but are so arranged that they will open of their own accord. This being true, where automatic doors are used, there exists no necessity for an attendant. The law does not intend a vain thing, and, from my personal observation, I am of the opinion that the automatic doors referred to are so hung and adjusted that they will open and close of their own accord, and that it is not necessary to place an attendant at said doors to open them. This question, however, rests in the sound discretion of the Mine Inspector under the provisions above referred to in Section 292, and, if in the sound judgment of the Inspector, the automatic door is better adapted for the ventilation of air, and is less liable to injure occupants of the mine, he has the authority to permit their use.

Very truly yours,

W. H. MILLER,
Assistant Attorney General.

STATE MINING DEPARTMENT.

NOTICE.

COLUMBUS, OHIO, June 5, 1905.

To the Management of The Wills Creek Coal Company and its Employees at the Walhounding Mine:

From an examination and investigation recently made by this Department of the surface surrounding and overlaying a portion of the workings of this mine, and from our knowledge of the tender stratas overlaying the No. 7 vein of coal in many places in the low laying lands along the Wills Creek Valley, and also from the fact that there has already been a cave-in in the surface to the workings of this mine, we deem it imminently dangerous to the lives of persons entering same or remaining in it during high water or when the Wills Creek overflows its banks and until the overflow water has receded, and in consequence advise and order that no person or persons shall be permitted to enter at such times, nor shall they enter of their own accord or responsibility.

Any violation of this order, either by the management of the mine or by its employees, will be subject to all the penalties set forth in Section No. 6871 of the Mining Laws and prosecution will follow.

Very respectfully yours,

GEO. HARRISON,
Chief Inspector of Mines.
W. H. TURNER,
District Mine Inspector.

STATE OF OHIO,
EXECUTIVE CHAMBER,

COLUMBUS, OHIO, August 8, 1905.

HON. WADE H. ELLIS, *Attorney-General, Columbus, Ohio.*

DEAR SIR:—The thirtieth annual report of the Department of Mines and Mining for the year 1904, with the recommendation for the appointment of a

commission to revise the mining laws of Ohio, has been submitted to me by the Chief Inspector of Mines. From this report it is apparent that the present mining laws of Ohio are insufficient to meet the present demands of the operation of mines and mining. The conditions governing the production of coal in this State having changed so materially since the enactment of existing laws it is thought a revision of them is necessary. At present 67 per cent. of the whole coal production is mined by electricity and compressed air machines, and electric coal hauling motors are in general use. Our present laws contain no provisions whatever which apply to the dangers of electric wires, electric mining machines or hauling motors.

It seems to me that some provision should be made, for the protection of both the miners and operators. The Chief Inspector of Mines recommends the appointment of a commission for a general revision of all the mining laws. It appears desirable, in view of these facts, that your department investigate the present mining conditions of the State and the laws governing the same, and report the result of your investigation at your earliest convenience.

I would suggest that your Department co-operate with Mr. Harrison, Chief Mine Inspector, who will render you any assistance desired in this matter.

I enclose you herewith a copy of his recommendations.

Very truly yours,

MYRON T. HERRICK, *Governor*.

STATE MINING DEPARTMENT.

COLUMBUS, OHIO, December 15, 1905.

HON. MYRON T. HERRICK, *Governor of Ohio*.

DEAR SIR:—While the mines in the State are in fair sanitary condition, and the dangers from ordinary causes reduced to the minimum, fatal and serious accidents in the aggregate are on the increase. The principal causes to which accidents are attributable will be found in the following:

(1.) High power electric wires, in many cases unnecessarily placed, where employes in passing in and out of the mine, and also while employed at their work, can scarcely avoid coming in contact with them. Six (6) men have been killed in this manner during the present year, four of them being reported from Jefferson County, and were all foreign speaking men.

(2.) From being wound in the chains and cogs of coal cutting machines, the dangerous parts of which could, and certainly should be, covered by safety shields. Four (4) have been killed in this way during the year, and many others have been crippled for life.

(3.) From boys and men jumping unnecessarily on and off and riding on fast running trips of cars propelled by steam or electricity, fifteen (15) have been killed, and a great many others lost limbs and been seriously injured.

(4.) From men being given employment who have no practical knowledge of mining, and sent to work in dangerous places where they have no conception of the danger, and no person to instruct them or care for their safety. Seventysix (76) have been killed by falls of roof and coal, fifteen (15) of these have been killed in Belmont County, and fourteen (14) in Jefferson County. With few exceptions this number represents foreign speaking men who have little or no experience in the mines.

If coal companies will employ non-practical men, which, in some instances, may be necessary, we think they should be held responsible to see that the management of their mines have some regard for the safety of such men. We have about eleven hundred (1100) mines in the State, about one hundred (100) of them generating fire damp, which are of an extremely gaseous nature. From this cause, and from the excessive use of blasting powder in the mines where fast shooting, or what is known as blasting coal off the solid is in practice, the dangers are very much increased, and much greater necessity for care and watchfulness is required. An increase in the force of the department by at least three men is very necessary, and is also advocated by the miners. There are other points which can afterwards be brought out in the preparing of mining laws, but the aforesaid points we feel ought to be covered by any recommendations you may desire to make to the next General Assembly, and which are not now covered by the present mining statutes.

Thanking you for your evident past interest in the affairs of the Mining Department, we remain,

Very truly yours,

GEO. HARRISON,
Chief Inspector of Mines.

NOTE — Upon request of Governor Myron T. Herrick that we outline in general about what, in our judgment, would cover the most essential points relative to the most urgent changes and additions to the present Mining Laws, we submitted the above, and in his message to the General Assembly, January 1, 1906, he recommended that the Mining Laws be revised, mention of which has already been made in our general report to Governor Harris on page eight.

G. H.

ELECTRIC WIRES.

The careless and unsystematic placing of wires in mines for the purpose of conducting that invisible, deadly power, electricity, and the number of accidents resulting from employees coming in contact with them, is a matter which will sooner or later force itself on the attention of the law making power of the State and compel the enactment of stringent legislation.

That electricity as an element of power in the production of coal is not only necessary from a standpoint of competition, but that its use in every legitimate way in the advancement of civilization is justified, is acknowledged by every progressive man. It is, however, highly essential that the greatest caution be exercised in its application so as to avoid loss of life or injury to persons coming in contact with it.

Many of the largest mines in the State now using electricity were formerly pick mines, and have been developed into electric mining machine mines beyond a territory worked out on the old pick mining system. In many cases there is but one narrow entry that penetrates and extends through the old worked out territory to the new development, which, of necessity, must be used as a motor haulway and traveling way as well for employees who are employed therein. In this entry it is also necessary to have the motor wire and the positive and negative wires on which to conduct the electricity to operate the mining machines, etc. This is not all; we often find a line or two of water or steam pipes strung along one side or the other of the track. Consider a space probably eight feet wide, and four and one-half or five feet high, containing all this paraphernalia, and a trip of mine cars propelled by an electric motor at a speed of ten miles an hour, and it is easy to conceive how difficult it is for miners to travel in and out without coming into contact with a live wire or being caught by a passing trip of cars.

This condition of things, we regret to say, in some instances, cannot well be avoided, and, if any radical changes were enforced, it would mean the closing down or abandonment of the mine, but there are a number of cases where openings could be provided at the head of the workings at nominal cost, and used for the purpose of miners travelling in and out of the mine free from dangers incident to travelling in the main haulway.

There were six (6) fatal accidents during the year resulting from contact with electric wires in the mines of the State. Four were reported from Jefferson, one from Belmont and one from Noble Counties, all of the victims being foreign speaking men. This may not seem a very large number of fatal accidents considering the amount of coal

produced and handled by electricity, but if proper care and foresight are used in the construction of wires, which can very easily be done, especially in the opening of new mines, this Department is of the opinion that fatal accidents from this cause can almost entirely be eliminated. It is also very noticeable that, with few exceptions, the fatal accidents from coming in contact with electricity, are where a higher power of five hundred (500) or five hundred and fifty (550) volts is carried, which also seems unnecessary, as it is fatal to those whose misfortune it is to come in contact with them.

Some manufacturers of high power electric machinery and mine operators who desire to use such may take exception to this Department raising the question of limited voltage, but we feel that it is but fair to the ninety-five per cent. (95%) of the Mine Operators in the State to say that they are successfully operating their mines with a power not to exceed two hundred and fifty (250) volts, which, in few cases, proves fatal where persons stumble against the wire, and those operators ought not to be charged in common for the loss of life with those who use an unnecessary and excessively dangerous power, and under whose operations these accidents almost exclusively occur.

MINE VENTILATION.

There is no subject of greater importance to mine managers or that affects the operation of mines more directly than that of ventilation.

From an economical standpoint there is no one element that has a greater bearing on the production of coal, both in amount and in its cost per ton on board the railroad cars at the tippie than mine ventilation. If a mine is well ventilated with an abundant volume of pure air continually sweeping along the haulways and through the inner working places of the miners, and driving the powder smoke and impurities from them, we invariably find the miners, mule drivers and day men at their particular post and eager to make the most of their time. When we find a mine with a sluggish, meager current, impregnated with impurities, doors and stoppings out of repair, the black damp oozing from old workings and lurking along the entries and a vapory mist settled along the chamber of the miner's working place, so that one is unable to discern the faintest flicker of flame from his lamp until within a few feet of him, we find a mine where there is continual discontent, and the coal is usually very costly. Under such circumstances we find mule drivers and day men performing their work under difficulties and disadvantages that discourage them, so that they become indifferent as to results. Men who mine the coal, or load it, instead of being in their working places taking advantage of every moment of their time to increase their daily earnings, are too often found in groups in the entry, or at some point far enough from the face where they can get a breath of the current, whether it may be very pure or not. They are usually out of humor, complaining of aching limbs or headaches caused by the black damp or foul air, discussing defective airways, broken doors, impaired brattices and other real or imaginary grievances, often abusing the mine management and mine inspectors in not very choice language for their neglect of duty, and very naturally ready to grasp at any excuse to leave their work long before the proper quitting time.

The above conditions, we are pleased to say, are the exception, but still we find them much more frequent than is necessary, and such conditions give the mine inspector considerable annoyance and necessitate his giving an order to reduce the number of miners or probably stop the whole operation until such improvements as the law requires are completed.

We regret to say that, judging from the tone of the complaints from some mine bosses, they seem to think that some of our district inspectors enjoy issuing an order to curtail the operation of a mine, when we are positive, that out of consideration for operators, and in order to avoid miners losing time, as well as granting mine bosses every leniency, the last and most unpleasant duty of an Inspector is to *even suggest the stoppage of any part of a mine.*

EFFECT OF THE CHANGED SYSTEMS OF HAULING COAL ON THE VENTILATION IN MINES.

In late years the systems of hauling coal extraordinary long distances by tail rope and electric motor have had their effect on mine ventilation. A few years ago it was the exception to see a mine with a capacity of handling over one thousand tons of coal per day, and seldom did a Company anticipate working more than two hundred or three hundred acres of territory from one opening, realizing that it was cheaper, especially where the vein lay above water level, to make a new opening than to continue the cost of maintaining a long haulage.

The new methods of long distance, high speed haulage have induced coal companies to acquire large possessions of adjacent coal lands and re-develop their old mines, rather than seek new locations for openings, avoiding the building of new tipples, or extending railroad switches, and reaching large bodies of coal that could not possibly be reached by overland railroad tracks.

The new developments are almost universally equipped with electric mining machines, large mine cars and high speed haulage, the calculation being to increase the production probably two, three or four times the original daily output. All such mines were originally opened as pick mines, the opening, entries and airways and all equipment being in keeping with the times at the time of opening, the entries usually running six or seven feet wide, seldom ever more than eight feet. In the majority of the mines referred to the coal is now hauled by electric motor or tail rope one and one-half or two miles through the old original territory in the old main entry, which is also used as the inlet or return for the air current which in itself is often too small an area for the volume required to supply the increased number of men employed in the new development, but when we realize that there is a long trip of large mine cars which almost fills the whole space in the entry running at high speed to and fro from morning until quitting time, drawing the black damp from the old workings, continually buffetting and interrupting the ventilating current, it is very easy to imagine how impossible it is to maintain proper ventilation under such circumstances.

In such mines as referred to in this article there ought to be two separate and distinct openings in the interior of the mine, and the ventilation ought to be independent and not liable to fluctuations caused by the travel of long trips of cars propelled by high speed power of any description. Haulways of this character should never, under any circumstances, be used as an intake or return airway.

INUNDATIONS OF MINES FROM SURFACE BREAKS IN LOW LAYING LANDS.

During the year we have had several instances of surface caves and partial flooding of mines along the creeks and ravines where the coal has been mined out under the low laying lands where the cover is thin and an absence of rock over the coal exists. While no life has been lost from this cause, there has been considerable loss to mine operators, and damage to property. Fortunately, we have not had any cases where a cave has occurred while the surface was covered with the overflow of water, or the results might have been very serious. The danger, however, has been so imminent, that, in a number of cases, this Department has had notices posted at the mines prohibiting any person from entering or remaining in mines while the creek overflows its banks; but this should not be interpreted that men shall not enter the mine when a few pools of surface water are standing in the swales on the surface if the creek waters are not overflowing the banks. We make mention of this from the fact that there was a misinterpretation of the order given by this Department, and the miners refused to go to work on account of a little water left in the low places after the high waters had receded, and there was absolutely no danger.

SECOND OPENINGS.

During the summer and fall of the year 1904, following our appointment as Chief Inspector, we discovered that quite a number of mines in the State, both shaft and drift, were being operated with an unlimited number of miners without being provided with a second opening or escapement way as required by Section 297 of the mining laws, and that there was a general misconception or misinterpretation of that section of the law. Many operators assumed the position that shaft mines with but one opening could be operated indefinitely if not more than twenty miners were employed at any one time, and that there was no law to restrict the number of miners employed at any one time until a mine had been in operation at least one year after the first shipment of coal, that time being allowed to provide a second opening. This view also having been held by many of the Inspectors, from time to time, there did not seem to ever have been any very definite action taken by the Department on that point, and, in consequence, we deemed it advisable to have the opinion of the Attorney General of the State, which will be found on page 20 of this report, and which fully sustains the opinion that a shaft mine can only be operated for the purpose of making communication between the two openings, not less than one hundred feet apart, and that not more than twenty (20) men can be employed at any one time for that purpose, and that it is unlawful for any men to be worked for the purpose of development of a mine or the production of coal or for any other purpose than making a connection between two openings until two separate and distinct means of ingress and egress are provided.

It will be seen by the opinion referred to on this point that in opening a shaft mine hereafter that it will be necessary to make a second opening at the same time and make a communication between before the work of development can proceed.

Owing to the above causes we found some of the oldest mines in the State without lawful second openings, and the operators very reluctant to make them (notwithstanding some of their mines were a veritable death-trap), offering as their strongest reason for not doing so, the fact that they had been permitted to operate their mines so many years without a second escapement way, and that no lives had been lost from that cause.

Not desiring to inflict any hardship on either operators or miners by taking any radical course that might close the mines during the busy season in the winter, we awaited action, except in cases where there was evidence of imminent danger, until weather conditions would per-

mit in the spring of the present year. About the first of March a general order was given by every Inspector and the law providing for second openings strictly enforced in every instance, the result being that more escapement ways were provided during the year covered by this report than any year in the history of the Department.

COAL PRODUCTION.

(87)

COAL TRADE IN THE UNITED STATES.

Early estimates of the coal production in the United States indicate that the year 1905 will show a material increase over that of the preceding year, the amount being estimated at 373,207,956 short tons, an increase of almost twenty-two and one half million tons over the year 1904, or a gain of 6.3%.

The year, in its entirety, was a prosperous one, and free from long suspensions or protracted strikes. The demand for fuel was large, the increased production consumed being without precedent in previous years.

The lack of facilities for moving the product, which for years has been a great drawback to the industry, manifested itself at the close of the year when trade conditions revived and there was a large demand for coal.

Pennsylvania still continues to lead the list of coal producing States, mining practically all the anthracite coal and thirty per cent. (30%) of the bituminous, showing decided gains in both grades of coal mined. Illinois, West Virginia and Ohio in the order named follow Pennsylvania in point of production, but from all present indications, the strides that West Virginia has made will soon place her second in the production of coal in the United States.

Many new mines have been opened up during the year and the development of new territories has been marked. The processes for handling and mining the coal has witnessed many improvements, especially the use of electricity for transmitting power. The use of coal cutting machines made less progress than in former years.

The world's production of coal is estimated at 900,000,000 tons, the United States contributing in round numbers 350,000,000 tons, Great Britain 240,000,000 and Germany 171,000,000. These three countries produce 85 % of the world's supply of coal.

AVERAGE YEARLY TONNAGE OF OHIO PER EMPLOYEE, AS
COMPARED WITH OTHER COAL PRODUCING STATES.

On page 40 will be found the coal production, the number of employes, also the number of tons produced for each employe, in the various coal producing states from which we were able to receive returns. Every state, with the exception of Iowa and Missouri, reports a greater tonnage produced for each employe engaged in the production of coal than our own state, Ohio, and when it is further taken into consideration that 74% of our total tonnage is machine-mined coal, an average far above every other state, the miner on an average receiving about 25c per ton less for machine coal than for pick mined coal, still further reduces his general annual earnings compared with those of other states.

West Virginia leads all other states in having the highest tonnage per employe, the number being 800, or 215 tons more than the state of Ohio. Colorado follows with 741 tons, or 156 tons above Ohio. The state of Maryland shows 734 tons, or 149 tons more than Ohio, and the great state of Pennsylvania records 720 tons, or 135 tons more per man than Ohio. Alabama shows 106, Illinois 43, and Indiana 6 tons above the tonnage recorded for each person in Ohio. Iowa produced 109 tons and Washington 39 tons less than Ohio per man, and these two states together only produce about 8,100,000 tons as compared with about 25,800,000 for Ohio.

The state of Illinois shows a decrease of 49 tons mined for each employe in 1905 as compared with 1904, and the only other state showing a loss is Alabama, with 60 tons.

TABLE SHOWING THE TOTAL NUMBER OF TONS OF COAL MINED DURING THE YEAR 1905 IN THE VARIOUS STATES OF THE UNITED STATES, THE NUMBER OF EMPLOYEES, AVERAGE TONS MINED BY EACH AS COMPARED WITH THE YEAR 1904, AND THE RELATIVE POSITION EACH HOLDS AS A PRODUCER OF BITUMINOUS COAL.

States.	Number of Tons Produced.	Number of Employees.	Number of Tons Mined For Each Employee in 1905.	Number of Tons Mined For Each Employee in 1904.	Gain Made in 1905 Over Year 1904.	Loss in 1905 Over 1904 in Tons Produced For Each Employee.
Pennsylvania*	119,361,514	164,941	724	642	82	.....
Illinois	37,183,374	59,230	628	677	.....	49
West Virginia	35,283,392	44,075	800	719	81	.....
Ohio	25,834,657	44,193	585	536	49	.....
Alabama	11,900,153	17,218	691	631	.....	60
Indiana	10,995,972	18,609	591	553	38	.....
Colorado	8,989,631	11,990	741	629	112	.....
Iowa	6,806,011	17,624	386	381	5	.....
Maryland	4,571,209	6,230	734	713	21	.....
Washington	1,279,636	2,343	546	627	81	.....

* Bituminous.

The following article and coal statistics are printed through the courtesy of the Department of the Interior—U. S. Geological Survey.

PRODUCTION IN UNITED STATES FROM EARLIEST TIMES TO CLOSE OF 1904.

Probably the first mention of the occurrence of coal in the United States is contained in the journal of Father Hennepin, a Jesuit missionary who, in 1679, recorded a "cole mine" above Fort Crevecoeur, on the Illinois River, near the site of the present city of Ottawa, in the State of Illinois. This was almost a hundred years before the discovery of coal in Pennsylvania, and about seventy years before the mines in the Richmond basin were opened and worked. Father Hennepin marked the location of this "cole" mine on the map which illustrates his journal.

So far as we know the first coal actually mined in the United States was from the Triassic area in Virginia, in what is commonly known as the Richmond basin. According to Mr. W. J. Nicolls the Virginia mines were opened and worked as early as 1750, and for a number of years not only the citizens of Richmond, but those of Philadelphia and New York obtained their supplies of coal from these mines. But with the discovery of anthracite in Pennsylvania, and the subsequent developments in the Cumberland-Piedmont regions of Maryland and Virginia, and in the Clearfield bituminous districts of Pennsylvania, operations in the Richmond basin fell off and finally ceased to be of any importance. Some few years ago expensive but unsuccessful attempts were made to resume production there on a large scale. But while the coal is well adapted for domestic use, the high cost of mining, due to the depth of the coal and the faulted nature of the beds, would not admit of its successful competition with other coals even in the Richmond markets, and mining has been practically abandoned.

Ohio probably ranks second in priority of production, one Lewis Evans being said to have discovered coal in the State in 1755, but the first record of actual production in Ohio is eighty-three years later. Anthracite, so called, was discovered in Rhode Island in 1760, but this region, owing to the refractory nature of the coal and the difficulties encountered in mining, has never developed into any importance.

In his report on the anthracite coal field of Pennsylvania, published in the Twenty-second Annual Report of the United States Geological Survey, Part III, Mr. H. H. Stock, of Scranton, Pa., gives the following sketch of the early history of anthracite coal mining:

The first authentic date in connection with anthracite coal is 1762, when Parshall Terry and a company of Connecticut pioneers found coal at the mouth of Mill Creek, on the banks of the Susquehanna, near the site of the present city of Wilkesbarre. In 1769 Obadiah Core, a blacksmith, used anthracite for fuel in his forge. The presence of coal in the Mahanoy and Shamokin basin of the Schuylkill region was known in 1770, but the beds were not developed until 1834. In 1775 the proprietary government of Pennsylvania had coal floated down the Susquehanna from Wilkesbarre to Harris Ferry (Harrisburg), whence it was hauled by wagon to the arsenal at Carlisle for use in the manufacture of munitions of war. Similar shipments were made annually during the Revolutionary war. In 1788 Jesse Fell used this coal in his nailery.

In 1791 coal was discovered near Mauch Chunk by Philip Ginter, who, according to tradition, on returning home at night kicked a black

stone in his path, which proved to be anthracite. The Lehigh Coal Mine Company was formed in 1792, and secured a large tract of coal land, and in 1793 a road was built to the Lehigh River above Mauch Chunk.

Coal was used locally by blacksmiths immediately after each of the above discoveries, and numerous attempts were made to float coal-laden arks down the Lehigh and Susquehanna, but people would not believe that the black stones would burn, and no progress was made for some years in the development of a coal trade.

Oliver Evans burned anthracite in a grate in Philadelphia in 1802. So also did Frederick Groff, chief of the water company in Philadelphia in 1802.

In 1805-6 John and Abijah Smith, from Derby, Conn., settled in Plymouth, Pa., bought coal lands and immediately began shipping coal by arks to points along the lower Susquehanna River. Fifty-five tons were shipped in 1807 to Columbia, Pa., and thereafter 100 to 500 tons yearly to points on the lower Susquehanna and to Baltimore, where \$10 per ton was received, and to New York, where \$12 was the price. It was necessary to create a demand for anthracite coal and to instruct people in its use, so Smith Brothers accompanied their arks and took with them suitable grates, which were set up in public houses to demonstrate the use and value of this fuel.

In 1804 coal was discovered at Carbondale by Samuel Preston; in 1814 William and Maurice Wurtz began its development, and in 1815 they succeeded in sending an ark load to Philadelphia by the Lackawaxen and Delaware rivers, but this experiment was not repeated until 1823.

Reports of the anthracite coal trade are usually begun with the year 1820, when 365 tons of coal were shipped to Philadelphia from the Lehigh region by the Lehigh Coal and Navigation Company, but the dates given above show that the starting point should go back to 1807, and that credit should be given to the Smith Brothers of Plymouth, who carried on a successful trade in coal for thirteen years prior to the usual time of beginning the record.

Between 1820 and 1823 the trade from the Lehigh region was firmly established, and about 1825 the Schuylkill region was opened upon the completion of water communication with Philadelphia by the Schuylkill Navigation Company.

Between 1823 and 1825 the Delaware and Hudson Canal Company was incorporated, and in 1829 began to ship coal from Carbondale by the canal and the gravity railroad.

In the following table, showing the production of coal in the United States from the earliest times, the production of anthracite in Pennsylvania is made to begin in 1814, when the first shipment was made from Carbondale to Philadelphia. An estimated production of 800 tons is distributed through the period between 1814 and 1820. The production from 1807 to 1814 probably amounted to from 2,000 to 2,500 tons.

Although we know that mining began in the Richmond basin in the middle of the eighteenth century, there are no records available from which even an approximate estimate of production can be made for seventy-one years after the mines were opened. The first year for which any figures are given is 1822, when, according to one authority, 51,000 short tons were mined. In 1824 the production is reported to have amounted to 67,940 short tons; in 1826 to 88,720

and in 1828 to 100,280 tons. In each of these years the output exceeded that of Pennsylvania anthracite, but that condition ceased permanently in 1829, although the production of the Richmond basin continued to increase until when it began to decline. Shortly after the decline began in the Richmond basin the regions in the northwestern part of the State (now West Virginia) began to produce coal, and until 1863, when the State of West Virginia was created, Virginia was numbered among the important coal-producing states. Developments in Tazewell County in 1883 and in Wise County ten years later have again restored Virginia to importance as a coal producer, the state ranking as fifteenth out of thirty-one in 1904.

Notwithstanding the fact that the first mention of coal in the United States is that of Father Hennepin in his notes regarding Illinois, we have no record of any coal being mined there prior to 1810, in which year a flatboat loaded with coal mined at a point on the Big Muddy River and shipped to New Orleans. Another report states that in 1832 several boat loads were sent from the same locality to the same market. Still another record is found stating that 150,000 bushels, or 6,000 tons, were mined in St. Clair County, Ill., in 1833 and hauled by wagons to St. Louis. It is usually considered, therefore, that coal production in Illinois began in 1833.

Kentucky appears as the third state in priority of coal production. According to one of the early reports of the Kentucky Geological Survey, coal was first mined in that state in 1827, but the exact location and the amount of coal mined are not stated. In the same report is the statement to the effect that in 1828 several boat loads of coal were sent from Kentucky mines to Nashville, Tenn., and that from 1829 to 1834 probably from 25 to 30 boat loads of coal were shipped from Kentucky each year. From the best information available it seems that the production of the state from 1829 to 1835 ranged from 2,000 to 6,000 tons per year, and the United States census for 1840 credits Kentucky with a total production of 23,527 tons.

The next state in priority of actual production, so far as our records go, is Maryland, for in 1838, according to one of the state reports, that state mined 119,952 tons. The census of 1840 contains the earliest mention of coal production in different states. It also gives the first mention of Pennsylvania bituminous coal, the output of which for that year is reported at 464,826 short tons. The states whose first production is reported in 1840 are Missouri, Indiana, Tennessee, Iowa, Arkansas, and North Carolina. Shipments from the Maryland region in Maryland, began two years later — in 1842 — and the records of production for that state are usually dated from that year. Production began in Maryland, however, fully twenty years prior to that date.

Mr. W. J. Nicolls, in his *Story of American Coals*, states that in 1820 the first shipment of coal from Allegany County, Md., consisted of a few thousand tons and was sent down the Potomac River in boats. Mr. R. C. Taylor, in *Volume, The Statistics of Coal*, reports that as early as 1832, 300,000 bushels (equivalent to about 12,000 tons), were annually sent down the Potomac River, but the method of transportation resulted in so much loss of coal and of the life of the boats that it was abandoned. The same authority states that the production of bituminous coal in Maryland in 1840 amounted to 222,000 bushels, which was equivalent to 8,800 short tons. It was not until 1860 that any states entered the lists of coal producers, so far as we have any records. The United States census, which covered the fiscal year 1860, credits the State of Washington with 5,374 short tons; Michigan with 2,320 tons, and Georgia 1,900 tons. In the following year (1861) California began producing with 1,000 tons, and in 1863 West Virginia was created and is credited with a production of 444,648 tons, and a corresponding decrease was exhibited in the tonnage

of Virginia. Colorado is the first of the Rocky Mountain States to be included among the coal producers, a production of 500 tons being reported from that state in 1864. Wyoming began producing in the following year, and Kansas in 1869. Utah's first production was reported by the census of 1870; and that of the Indian Territory, 129,947 short tons, Oregon, 43,205 short tons, and Montana, 224 tons, were reported for the first time by the United States census of 1880. The New Mexican mines were opened in 1882 with a production of 157,092 tons. Texas and North Dakota began producing in 1884.

Since 1814 the total amount of coal produced in the United States has amounted to 5,600,000,000 short tons, more than 50 per cent. of which has been produced in Pennsylvania, the anthracite production having amounted in this period to 1,696,963,748 short tons, and the bituminous production to 1,448,233,213 short tons, or a total for the state of 3,145,196,961 short tons. Illinois ranks second in the amount of total production, with an aggregate of 514,636,696 short tons, and Ohio third, with 407,376,941 short tons. West Virginia, although not created until 1863, ranks fourth, with a total production during forty-two years of 305,221,093 short tons; Maryland ranks fifth, with 131,506,048 short tons; Alabama sixth, with 125,509,824 short tons; Indiana seventh, with 121,559,055 short tons, and Iowa eighth, with 119,969,637 short tons.

1880	39,032,446	684,931	1,560,000	11,175,241	8,435,211	27,004,501	1,800,000	3,000,000	1,800,000	1,714,200	4,315,779	125,000	400	2,517,577	825,325
1887	42,088,197	825,263	1,933,185	12,423,000	10,300,708	31,510,836	3,299,010	3,217,711	1,550,000	1,900,000	4,478,828	139,000	310	3,278,023	775,001
1888	46,319,564	1,073,000	2,370,000	14,328,181	10,010,521	33,796,727	3,919,067	3,140,979	2,000,000	1,967,297	4,952,410	270,871	250	3,479,470	1,215,790
1889	45,546,976	895,786	2,393,755	12,104,272	9,976,787	36,174,080	2,57,823	2,845,057	3,572,083	1,925,080	4,005,358	279,384	222	2,030,715	1,030,578
1890	46,408,611	784,011	2,701,496	15,292,420	11,491,346	42,302,173	2,735,221	3,305,787	4,090,101	2,100,585	4,021,729	390,888	10,292	3,357,813	1,295,089
1891	50,663,431	706,390	2,916,069	15,690,698	12,806,682	42,788,490	2,674,006	2,973,474	4,759,781	2,413,678	3,825,405	542,870	30,355	3,820,239	1,056,249
1892	52,472,304	675,205	3,025,313	17,802,270	13,562,027	46,694,576	2,735,949	3,345,174	5,136,035	2,192,051	3,918,491	635,558	4,070	3,419,902	1,213,427
1893	53,967,543	890,339	3,097,179	16,919,561	13,253,646	41,670,724	2,897,442	3,701,851	5,136,035	1,992,258	3,972,229	571,705	17,000	3,716,041	1,264,877
1894	51,921,121	1,229,083	3,111,192	17,113,576	11,163,856	39,012,083	2,345,039	3,423,921	4,307,178	2,180,879	3,967,253	571,705	10,000	3,501,428	1,100,470
1895	57,969,337	1,308,024	3,357,770	17,735,864	13,365,806	39,217,228	2,372,353	3,905,893	5,093,175	2,535,614	4,156,674	571,705	10,000	3,915,585	1,191,410
1896	54,346,081	1,254,723	3,333,478	19,786,026	12,875,292	49,537,473	2,391,542	3,905,893	5,748,097	2,683,106	3,951,028	571,705	10,000	3,915,585	1,191,410
1897	52,611,680	1,028,302	3,692,067	20,072,734	12,196,942	54,417,571	2,065,029	4,151,169	5,893,779	2,888,849	4,031,853	856,190	21,980	4,442,128	1,434,112
1898	53,382,614	1,815,274	3,887,968	18,569,290	14,510,897	65,105,133	2,688,921	4,920,743	6,255,243	3,022,890	4,618,842	1,295,479	11,405	4,074,854	1,881,571
1899	60,418,065	2,103,791	4,697,253	24,439,019	16,500,270	74,139,175	3,025,814	6,006,521	7,393,416	3,320,659	5,177,479	843,554	26,800	4,897,396	2,029,881
1900	57,367,915	2,193,873	5,328,964	25,767,081	18,468,150	79,842,326	3,340,103	6,184,083	8,391,275	3,703,592	5,212,959	1,117,945	17,734	4,024,688	2,474,063
1901	67,471,967	2,725,873	5,469,986	27,331,352	20,913,894	82,335,916	3,802,089	6,918,225	9,099,052	3,433,593	5,617,499	1,810,136	12,000	5,113,137	2,678,217
1902	41,573,595	3,182,093	6,796,984	32,039,373	23,519,894	108,371,367	3,890,154	9,140,424	10,354,570	4,382,968	6,904,760	1,913,992	23,000	5,271,099	2,681,214
1903	71,907,898	3,431,307	7,538,062	36,957,101	24,898,103	103,117,178	4,298,090	10,704,022	11,651,324	4,798,001	6,419,811	2,229,172	17,300	4,816,165	3,193,273
1904	73,156,769	3,381,914	7,568,182	36,475,000	21,434,812	97,032,297	4,108,308	10,534,579	11,292,046	4,782,211	6,510,163	2,009,451	7,000	4,813,622	3,137,681
	1,006,963,748	44,161,107	93,554,952	514,636,000	407,370,041	1,448,233,213	80,878,784	121,579,059	125,360,824	65,408,393	110,960,457	17,287,022	475,248	131,500,048	38,287,055

[illegible]

PRODUCTION OF COAL IN THE UNITED STATES FROM 1814 TO THE CLOSE OF 1904 — Concluded.

Year.	Michigan.	Georgia.	California.	West Virginia.	Colorado.	Wyoming.	Kansas.	Utah.	Indian Territory.	Oregon.	Montana.	New Mexico.	Texas.	North Dakota.	Miscellaneous.	Total.
1863	1,367,619	416,351	616,420	29,337,241	7,423,602	4,635,263	5,839,976	1,081,409	3,517,388	91,144	61,493,000	1,511,781	928,730	278,645	.....	357,356,416
1904	1,342,840	383,191	679,382	32,042,819	6,658,355	5,178,356	6,333,307	1,193,027	3,046,639	111,540	61,362,369	1,452,325	1,195,944	296,128	.....	352,310,427
	1,897,336	7,077,197	4,329,848	305,221,083	2,940,433.59	829,760	71,405,001	13,784,452	30,417,730	1,330,039	19,258,283	16,061,827	10,583,322	1,897,467	36,911,100	5,578,324,051

^a From 1871 to 1888, inclusive, production reported in this column is due principally to colliery consumption, which in some years was estimated and not included in the distribution by States. Since 1888 small, irregular production from several unimportant sources has been included in this column. ^b Includes Alaska's production. ^c Includes Idaho's production. ^d Production of Idaho and Nevada.

COAL TRADE IN OHIO FOR THE YEAR 1905.

The fuel industry for the year 1905 was a most extraordinary one in many respects, the most notable being the fluctuations in prices, and most radical changes in purchasing a supply of coal from one month to another instead, as in former years as has been the custom, of contracting for future delivery months ahead.

The fore part of the year started out with conditions generally good, continuing to grow better until the month of May when the status of the trade began to suffer stagnation, prices began to fluctuate and the months of June, July and August witnessed the worst values recorded in years. In September there was a turn of events for the better in the coal traffic, and the demand for coal to supply mills, factories and furnaces was so great that coal operators began to take courage, and the year closed with better values and improved conditions. The car shortage was again in evidence at the close of the year, which may follow any unusual demand for fuel and served to stimulate trade for several months. The two years' contract between the miners and operators served to eliminate any unpleasantness or suspensions of any importance, and this led to a year of comparative peace and prosperity, and augurs well for the industry in the year 1906.

COAL TONNAGE IN OHIO FOR THE YEAR.

The coal production of the State of Ohio for the year 1905 amounted 25,834,657 tons, an increase of 1,250,842 tons over that of the preceding year. This decided increase as compared with the slight increase shown in the year 1904 over 1903 was probably due to a number of new mines opened up (forty-two in all), the absence of strikes or lockouts and the continued prosperity evident everywhere in all branches of trade, and the healthy condition of our large industrial institutions during the year.

Of this amount 17,788,589 tons were lump coal, an increase of 2,139 tons as compared with the preceding year; the nut coal increased 3,879, and the pea and slack 214,824 tons.

In comparing the coal tonnage of Ohio for the year 1905 with 1904 by counties, we find that Belmont occupies first place instead of second and displaces Athens County, which for several years past has held that position undisputed, and establishes the fact that Eastern Ohio is making vast strides in developing and operating mines of magnitude and a capacity for handling large outputs in a speedy and economical manner, and proves conclusively that this section of the State is moving to the front and securing new markets for its increased tonnage.

Belmont produced in 1905, 3,871,846 tons, a gain of 588,657; Athens follows with 3,848,440, a slight loss of 5,638 tons. Although Belmont displaced Athens as the first coal producing county in the State, it was only by the small tonnage of 23,406 tons.

Jefferson takes the place of Guernsey in rank of production, mining 3,337,799, showing a gain of 842,424 tons. Guernsey ranks fourth and makes a showing of 2,896,756 tons; this county shows a loss of 187,464 tons as compared with the previous year.

Perry ranks fifth, and Jackson sixth. Athens and Belmont Counties produced over three and one-half million tons; Jefferson over three million; Guernsey over two and one-half; Perry over two; Jackson and Hocking over one and one-half, and Tuscarawas over one million.

Losses appear in 16 counties, amounting to 803,297 tons, and gains in 13, aggregating 2,054,139 tons.

In the year 1900 the Hocking District, comprising the counties of Athens, Hocking and Perry, produced 6,292,429 tons, while the Pittsburgh No. 8 vein, which at that time was composed of the Counties of Belmont and Jefferson, produced only 438,731 tons. In the year 1905 the first named field produced 7,943,773 tons, or an increase of 26% in five years, while the Eastern Ohio field (Belmont, Jefferson and Harrison) increased for the same period 1421% and produced 6,674,095 tons.

TABLE SHOWING COAL PRODUCTION OF STATE BY COUNTIES
DURING THE YEAR 1905.

Counties.	Tonnage for 1905.			Total.	Rank in Pro- duction.
	Lump.	Nut.	Pea and Slack.		
Athens	2,770,173	470,586	607,681	3,848,440	2
Belmont	2,545,702	574,699	751,445	3,871,846	1
Carroll	158,056	34,261	43,509	235,826	15
Columbiana	468,455	111,367	126,002	705,824	10
Coshocton	237,324	65,135	86,473	388,932	12
Gallia	13,487	2,068	2,996	18,551	26
Guernsey	2,013,583	303,506	579,667	2,896,756	4
Harrison	257,706	60,658	84,815	402,679	11
Hocking	1,219,355	220,362	256,046	1,695,763	7
Holmes	17,197	3,219	4,404	24,820	25
Jackson	1,319,899	229,263	338,742	1,887,904	6
Jefferson	2,252,444	441,080	644,275	3,337,799	3
Lawrence	151,978	28,486	32,485	212,949	17
Mahoning	70,181	17,545	29,348	117,074	21
Medina	61,894	11,187	18,124	91,205	23
Meigs	249,577	40,407	80,603	370,587	13
Morgan	128,433	17,768	27,350	173,551	18
Muskingum	161,395	36,834	43,782	242,011	14
Noble	119,214	18,702	33,593	171,509	19
Perry	1,712,767	311,058	375,745	2,399,570	5
Portage	57,445	10,767	15,391	83,603	24
Scioto	6,584	1,133	1,296	9,013	27
Stark	564,189	57,181	153,462	774,832	9
Summit	83,457	11,727	20,345	115,529	22
Trumbull	2,933	250	408	3,591	29
Tuscarawas	875,622	179,847	305,925	1,361,394	8
Vinton	154,371	28,044	41,860	224,275	16
Washington	2,160	576	864	3,600	28
Wayne	113,008	20,887	31,329	165,224	20
Total	17,788,589	3,308,603	4,737,465	25,834,657	.....

TABLE SHOWING TOTAL PRODUCTION OF PICK AND MACHINE-MINED COAL BY COUNTIES, DURING THE YEAR 1905.

Counties.	Pick Coal.	Machine Coal.	Total.
Athens	93,311	3,755,129	3,848,440
Belmont	915,348	2,956,498	3,871,846
Carroll	61,711	174,115	235,826
Columbiana	352,512	353,312	705,824
Coshocton	243,903	145,029	388,932
Gallia	18,551	.....	18,551
Guernsey	49,475	2,847,281	2,896,756
Harrison	177,791	224,888	402,679
Hocking	40,292	1,655,471	1,695,763
Holmes	24,820	.....	24,820
Jackson	1,114,225	773,679	1,887,904
Jefferson	543,116	2,794,683	3,337,799
Lawrence	184,544	28,405	212,949
Mahoning	117,074	.....	117,074
Medina	91,205	.....	91,205
Meigs	190,445	180,142	370,587
Morgan .....	.....	173,551	173,551
Muskingum	179,531	62,480	242,011
Noble	21,428	150,081	171,509
Perry	307,608	2,091,962	2,399,570
Portage	64,073	19,530	83,603
Scioto	9,013	.....	9,013
Stark	572,438	202,394	774,832
Summit	94,829	20,700	115,529
Trumbull	3,591	.....	3,591
Tuscarawas	1,043,511	317,883	1,361,394
Vinton	141,956	82,319	224,275
Washington	3,600	.....	3,600
Wayne	165,224	.....	165,224
Total	6,825,125	19,009,532	25,834,657

TABLE SHOWING THE COAL TONNAGE OF THE STATE FOR 1905 AS
COMPARED WITH THE YEAR 1904.

Counties.	1904.	1905.	Gain.	Loss.
Athens	3,854,078	3,848,440		5,638
Belmont	3,283,189	3,871,846	588,657	
Carroll	354,594	235,826		118,768
Columbiana	721,144	705,824		15,320
Coshocton	326,467	388,932	62,465	
Gallia	18,979	18,551		428
Guernsey	3,084,220	2,896,756		187,464
Harrison	307,206	402,679	95,473	
Hocking	1,894,869	1,695,763		199,106
Holmes	30,850	24,820		6,030
Jackson	1,958,538	1,887,904		70,634
Jefferson	2,495,375	3,337,799	842,424	
Lawrence	194,192	212,949	18,757	
Mahoning	86,495	117,074	30,579	
Medina	103,910	91,205		12,705
Meigs	212,395	370,587	158,192	
Morgan	83,700	173,551	89,851	
Muskingum	300,310	242,011		58,299
Noble	154,970	171,509	16,539	
Perry	2,491,682	2,399,570		92,112
Portage	97,692	83,603		14,089
Scioto	12,224	9,013		3,211
Stark	761,173	774,832	13,659	
Summit	84,208	115,529	31,321	
Trumbull	6,635	3,591		3,044
Tuscarawas	1,296,876	1,361,394	64,518	
Vinton	240,524	224,275		16,249
Washington	3,800	3,600		200
Wayne	123,520	165,224	41,704	
Total	24,583,815	25,834,657	2,054,139	803,297

NOTE:—

Total tonnage for 1905 was..... 25,834,657

Total tonnage for 1904 was..... 24,583,815

Showing net gain for 1905..... 1,250,842

Total increase in thirteen counties was..... 2,054,139

Total decrease in sixteen counties was..... 803,297

Showing net increase..... 1,250,842

TABLE SHOWING THE NUMBER OF COAL SEAMS WORKED IN EACH COUNTY; ALSO THE COMBINED AVERAGE PERCENTAGE OF LUMP AND FINE COAL FOR ALL MINES REPORTED FROM THE DIFFERENT COUNTIES.

Counties.	Coal Seams.								Pick Mining.			Machine Mining.		
	1	2	3	4	5	6	7	8	Lump.	Nut.	Pea and Slack.	Lump.	Nut.	Pea and Slack.
Athens						"	"	"	67	13	20	72	13	15
Belmont						"	"	"	64	17	19	66	16	18
Carroll					"	"	"	"	65	15	20	68	14	18
Columbiana			"		"	"	"	"	60	18	22	66	16	18
Coshocton					"	"	"	"	60	17	23	66	16	18
Gallia					"	"	"	"	65	14	21			
Guernsey					"	"	"	"	64	13	23	69	11	20
Harrison					"	"	"	"	60	17	23	66	16	18
Hocking					"	"	"	"	67	13	20	72	13	15
Holmes					"	"	"	"	70	12	18			
Jackson	"	"		"	"	"	"	"	65	14	21	70	12	18
Jefferson				"	"	6-a	"	"	66	14	20	68	14	18
Lawrence					"				70	14	16			
Mahoning			3-a						60	15	25			
Medina									68	12	20			
Meigs									67	11	22			
Morgan									67	13	20			
Muskingum						"	"	"	64	17	19	75	10	15
Noble						"	"	"	70	10	20	69	11	20
Perry					"	"	"	"	67	13	20	72	13	15
Scioto					"	"	"	"	70	14	16			
Stark				"	"	"	"	"	60	12	28	66	16	18
Summit	"				"	"	"	"	75	10	15			
Tuscarawas	"			"	"	"	"	"	64	12	24	66	16	18
Trumbull				"	"	"	"	"	70	10	20			
Vinton	"			"	"	"	"	"	68	12	20	70	12	18
Wayne									65	14	21			

NOTE.—General average for pick mines: Lump, 66 per cent; fine, 34 per cent. General average for machine mines: Lump, 69 per cent; fine, 31 per cent. The percentages given here were gathered from the best sources obtainable upon this subject.

PICK MINING.

The coal produced in Pick mines during the year 1905 decreased from 8,037,360 tons, or 32.7% of the total tonnage in 1904, to 6,825,125 tons, or 26% of the total output in 1905, and all indications are that this tonnage will still further decrease in the future.

This is the age for new inventions, and machinery has certainly displaced the miner's pick, until to-day only about one-fourth of the total tonnage is left entirely to his production.

Jackson County is now the greatest producer of Pick mined coal, with 1,114,225 tons, supplanting the county of Belmont, which now ranks third. Tuscarawas County again holds second place, with 1,043,511 tons, although showing a loss of 153,204 tons, which was more than equalized by the increase in the machine coal. Belmont comes third, with 915,348 tons; Stark fourth, with 572,438, and Jefferson fifth, with 543,116 tons.

The number of Pick miners employed in the production of Pick coal was 10,445, and the number of day hands in and outside, 3,693, showing a total of 14,138 employes engaged in the production of Pick coal, or a loss of 3,585 persons as compared with the year 1904.

The average time worked in the state was 169 days, the same as in Machine mines. This is probably due to the fact that a great many mines are allowed the same allotment of cars when a scarcity of cars prevails and also for the reason that some mines produce both Pick and Machine coal.

Pick coal is now most extensively mined in places where the nature of the roof and coal is such that it is impossible, or would incur too much expense, to install machinery.

The following tables are designed to show the figures pertaining to the mining of Pick coal:

TABLE SHOWING PRODUCTION OF PICK-MINED COAL BY COUNTIES, DURING THE YEAR 1905.

	Lump.	Nut.	Pea and Slack.	Total.
Athens	64,591	11,617	17,103	93,311
Belmont	595,539	140,414	179,395	915,348
Carroll	40,209	9,372	12,130	61,711
Columbiana	233,084	63,079	56,349	352,512
Coshocton	144,615	41,428	57,860	243,903
Gallia	13,487	2,068	2,996	18,551
Guernsey	31,705	6,458	11,312	49,475
Harrison	109,471	27,601	40,719	177,791
Hocking	27,409	5,156	7,727	40,292
Holmes	17,197	3,219	4,404	24,820
Jackson	750,565	147,524	216,136	1,114,225
Jefferson	357,924	75,975	109,217	543,116
Lawrence	132,095	24,510	27,939	184,544
Mahoning	70,181	17,545	29,348	117,074
Medina	61,894	11,187	18,124	91,205
Meigs	128,465	20,729	41,251	190,445
Morgan	*	*	*	*
Muskingum	115,609	30,167	33,755	179,531
Noble	15,658	2,193	3,577	21,428
Perry	206,939	39,655	61,014	307,608
Portage	43,095	8,947	12,031	64,073
Scioto	6,584	1,133	1,296	9,013
Stark	431,981	36,753	103,704	572,438
Summit	69,557	8,927	16,345	94,829
Trumbull	2,933	250	408	3,591
Tuscarawas	665,755	128,415	249,341	1,043,511
Vinton	97,352	18,040	26,564	141,956
Washington	2,160	576	864	3,600
Wayne	113,008	20,887	31,329	165,224
Total	4,549,062	903,825	1,372,238	6,825,125

* No Pick Coal.

TABLE SHOWING THE TONS OF LUMP COAL MINED IN 1905, THE NUMBER OF PICK MINERS, AVERAGE DAYS WORKED, AND AVERAGE TONS PRODUCED BY EACH MAN PER DAY AND PER YEAR.

Counties.	Number Pick Miners Employed.	Average Days Pick Miners Worked.	Tons Lump Coal Pick Miners Produced.	Average Tons Mined by Each Miner for the Year 1905.	Average Tons Mined by Each Miner Per Day Per Man.
Athens	115	156	64,591	562	3.6
Belmont	1,086	178.7	595,539	548	3.1
Carroll	93	176.2	40,209	432	2.4
Columbiana	501	223.9	233,084	465	2.1
Coshocton	309	211.4	144,615	468	2.2
Gallia	47	141.4	13,487	285	2.0
Guernsey	82	173.0	31,705	387	2.2
Harrison	221	173.0	109,471	495	2.9
Hocking	52	164.7	27,409	527	3.2
Holmes	42	175.5	17,197	409	2.3
Jackson	1,541	165.3	750,565	487	3.0
Jefferson	908	160.4	357,924	394	2.4
Lawrence	353	176.5	132,095	374	2.1
Mahoning	209	217.7	70,181	336	1.6
Medina	214	162.1	61,894	289	1.8
Meigs	227	197.4	128,465	566	2.9
Morgan	*	*	*	*	*
Muskingum	332	148.3	115,609	349	2.4
Noble	48	139.7	15,658	326	2.3
Perry	472	136.6	206,939	438	3.2
Portage	123	173.0	43,095	350	2.0
Scioto	19	130.5	6,584	347	2.7
Stark	1,062	163.7	431,981	407	2.5
Summit	193	151.8	69,557	360	2.4
Trumbull	16	94.0	2,933	183	1.9
Tuscarawas	1,527	167.1	665,755	436	2.6
Vinton	219	156.6	97,352	444	2.8
Washington	7	260.0	2,160	308	1.2
Wayne	427	131.9	113,008	265	2.0
Total	10,445	.....	4,549,062	.....	.....

NOTE:—

* No Pick Coal Reported.

Average number days worked by pick miners was 169 days.

Average number tons lump coal mined by each man for year was 435.5 tons.

Average number tons lump coal mined by each man per day was 2.58 tons.

MACHINE-MINED COAL.

As in former years, the production of coal by the aid of machinery is still on the increase, and all indications for the future lead any casual observer to believe that the time is not far distant when the producing of coal will practically all be done by machinery, at least up to about 90% of the total output.

In 1903, the production by machinery was 14,560,931 tons, or an increase of 1,121,283 tons over 1902. In 1904 the machine-mined tonnage was 16,546,455 tons, or an increase over 1903 of very nearly 2,000,000 tons. In 1905 a still greater per cent. of machine coal was mined, as it increased to 19,009,532 tons, showing a gain over 1904 of 2,463,077 tons. It has now reached that stage where it is about three-fourths of the entire output of coal in the state. This is the age of machinery displacing human labor, and the above figures no doubt show that this fact pertains to mining coal as well as in other industries.

Athens County is still the greatest producer of machine coal, representing about 98% of its total output. Belmont is second with 76%, Guernsey third with 98%, Jefferson fourth with 84%, Perry fifth with 87%, and Hocking sixth with 98%.

Belmont County shows the greatest increase in machine coal over 1904 with over 1,000,000 tons. Jefferson County follows with over 800,000 tons. Harrison County has increased from 28,650 tons machine coal in 1904 to 224,888 tons in 1905. It is very noticeable that all these phenomenal gains have taken place in the Pittsburg No. 8 vein in Eastern Ohio. This field has developed its coal territory to such an extent that it is now the second largest field in the state.

In 1903, the Pittsburg No. 8 field produced 2,552,236 tons machine coal out of a total of 5,181,550 tons, while in 1905 the machine coal amounted to 5,976,069 tons out of a total tonnage of 7,612,324 tons, or an increase from 49% to 78%.

Tuscarawas County also increased in machine tonnage from 100,161 tons in 1904 to 317,883 tons in 1905. In previous years the chain machine had been given a trial in this field without material success on account of the sulphurous bottom coal, but since the punching machine has been installed (which is better adapted for that vein of coal) more success has been attained as the increase in the machine coal will show.

Counties making gains are: Athens, Columbiana, Coshocton, Meigs, Morgan, Muskingum, Noble, Perry, Stark and Vinton, while Carroll, Guernsey, Hocking, Jackson and Lawrence have decreased in the production of machine coal. Portage and Summit Counties are machine coal producers for the first time.

There are only eight out of the 29 coal producing counties where coal is mined exclusively by pick.

The number of persons employed in the production of machine coal was: Shooters and Loaders, 19,299; Machine Runners, 2,620; Inside Day Hands, 5,261, and Outside Day Hands, 2,875; or a total of 30,055 persons. They worked an average of 169 days for the year, the same as in 1904.

The cutters worked an average of 173 days, or two days more than in 1904. There were 323 more Machine Runners employed in 1905 than in 1904, which is due to the great increase in the production of machine coal.

The number of tons of Run-of-Mine coal cut by each cutter was 7,255 tons, or an increase in tons over 1904 of 51 tons.

The following tables will give information concerning machine coal:

TABLE SHOWING PRODUCTION OF MACHINE-MINED COAL BY COUNTIES, DURING THE YEAR 1905.

	Lump.	Nut.	Pea and Slack.	Total.
Athens	2,705,582	458,969	590,578	3,755,129
Belmont	1,950,163	434,285	572,050	2,956,498
Carroll	117,847	24,889	31,379	174,115
Columbiana	235,371	48,288	69,653	353,312
Coshocton	92,709	23,707	28,613	145,029
Gallia	*	*	*	*
Guernsey	1,981,878	297,048	568,355	2,847,281
Harrison	148,235	33,057	43,596	224,888
Hocking	1,191,946	215,206	248,319	1,655,471
Holmes	*	*	*	*
Jackson	569,334	81,739	122,606	773,679
Jefferson	1,894,520	365,105	535,058	2,794,683
Lawrence	19,883	3,976	4,546	28,405
Mahoning	*	*	*	*
Medina	*	*	*	*
Meigs	121,112	19,678	39,352	180,142
Morgan	128,433	17,768	27,350	173,551
Muskingum	45,786	6,667	10,027	62,480
Noble	103,556	16,509	30,016	150,081
Perry	1,505,828	271,403	314,731	2,091,962
Portage	14,350	1,820	3,360	19,530
Scioto	*	*	*	*
Stark	132,208	20,428	49,758	202,394
Summit	13,900	2,800	4,000	20,700
Trumbull	*	*	*	*
Tuscarawas	209,867	51,432	56,584	317,883
Vinton	57,019	10,004	15,296	82,319
Washington	*	*	*	*
Wayne	*	*	*	*
Total	13,239,527	2,404,778	3,365,227	19,009,532

* No machine coal.

TABLE SHOWING NUMBER OF CUTTERS AND LOADERS EMPLOYED DURING 1905, AVERAGE DAYS WORKED BY EACH, TOTAL TONS LUMP COAL PRODUCED BY EACH, AND AVERAGE TONS CUT AND LOADED BY EACH FOR YEAR AND FOR EACH DAY.

Counties.	No. Loaders Employed.	No. Cutters Employed.	Average days worked by each Loader.	Average days worked by each Cutter.	No. Tons Lump Coal Produced.	Average Tons Loaded by Each Loader for Year.	Average Tons Cut by Each Cutter for Year.	Average Tons Loaded by Each Loader for Each Day.	Average Tons Cut by Each Machine Runner for each Day.
Athens	4,376	450	162.2	164.0	2,705,582	618	6,012	3.8	36.7
Bemont	2,619	421	184.0	186.0	1,950,163	745	4,632	4.0	25.0
Carroll	258	52	146.1	148.0	117,847	457	2,266	3.1	15.3
Columbiana	266	54	225.3	222.7	235,371	885	4,359	3.9	19.6
Coshocton	202	46	160.0	180.0	92,709	450	2,015	2.9	11.2
Gallia	•	•	•	•	•	•	•	•	•
Guernsey	2,418	278	187.3	186.2	1,981,878	819	7,129	4.4	38.3
Harrison	272	36	162.5	166.5	148,235	545	4,118	3.4	24.7
Hocking	1,481	140	191.3	189.7	1,191,946	805	8,514	4.2	45.0
Holmes	•	•	•	•	•	•	•	•	•
Jackson	780	146	173.4	169.5	569,334	722	3,900	4.2	23.0
Jefferson	2,664	379	175.4	178.2	1,894,520	711	5,000	4.1	28.1
Lawrence	40	12	175.0	175.0	19,883	497	1,657	2.8	9.5
Mahoning	•	•	•	•	•	•	•	•	•
Medina	•	•	•	•	•	•	•	•	•
Meigs	214	40	206.2	227.0	121,112	566	3,028	2.7	13.3
Morgan	180	36	164.1	167.3	128,433	713	3,570	4.3	20.1
Muskingum	55	8	178.2	180.0	45,786	832	5,723	4.6	31.8
Noble	233	30	114.5	121.1	103,556	444	3,452	3.9	28.5
Perry	2,574	328	132.1	146.4	1,506,828	585	4,591	4.4	31.3
Portage	25	14	192.0	192.0	14,359	574	1,025	2.3	5.3
Scioto	•	•	•	•	•	•	•	•	•
Stark	135	35	158.8	157.4	132,208	979	3,777	6.2	24.0
Summit	25	6	134.0	134.0	13,909	556	2,317	4.1	17.3
Trumbull	•	•	•	•	•	•	•	•	•
Tuscarawas	358	87	193.6	201.6	209,867	586	2,412	3.0	11.9
Vinton	115	22	144.7	132.6	57,019	496	2,592	3.4	19.5
Washington	•	•	•	•	•	•	•	•	•
Wayne	•	•	•	•	•	•	•	•	•
Total	19,299	2,620	•	•	13,239,527	•	•	•	•

NOTE —

Average tons Lump coal cut by each cutter for year..... 5,053 tons
 Average tons Lump coal loaded by each loader for year..... 686 tons

Average tons Lump coal cut by each cutter for each day..... 29.1 tons
 Average tons Lump coal loaded by each loader for each day..... 4.06 tons

Average total tons Lump coal for each cutter for the year is found by dividing 13,239,527 tons by 2,620, which is 5,053.

Average total tons Lump coal for each loader for the year is found by dividing 13,239,527 tons by 19,299, which is 686.

Average tons Lump coal cut by each cutter per day is found by dividing all the days worked by all the cutters; that is, 13,239,527 tons by 454,618, which is 29.1 tons.

Average tons Lump coal loaded by each loader per day is found by dividing all the days worked by all the loaders; that is, 13,239,527 tons by 3,262,776, which is 4.06 tons.

TABLE SHOWING THE COAL OUTPUT SINCE 1872 IN PICK AND MACHINE MINES, AND THE TOTAL TONNAGE FOR EACH YEAR.

Year.	Total Tonnage Pick Coal Produced Each Year Since 1872.	Total Tonnage Machine Coal Produced Since 1889, when Machinery was used to Undercut Coal.	Total Number Tons Produced for Each Year Since 1872.	Gain.	Loss.
1872	5,315,294		5,315,294		
1873	4,550,028		4,550,028		765,266
1874	3,267,585		3,267,585		1,282,443
1875	4,864,259		4,864,259	1,596,674	
1876	3,500,000		3,500,000		1,364,259
1877	5,250,000		5,250,000	1,750,000	
1878	5,500,000		5,500,000	250,000	
1879	6,000,000		6,000,000	500,000	
1880	7,000,000		7,000,000	1,000,000	
1881	8,225,000		8,225,000	1,225,000	
1882	9,450,000		9,450,000	1,225,000	
1883	8,229,429		8,229,429		1,220,571
1884	7,650,062		7,650,062		579,367
1885	7,816,179		7,816,179	166,117	
1886	8,435,211		8,435,211	619,032	
1887	10,301,708		10,301,708	1,866,479	
1888	10,910,946		10,910,946	613,338	
1889	10,007,385	900,000	10,907,385		3,561
1890	10,640,360	1,148,499	11,788,859	881,474	
1891	11,396,106	1,654,081	13,050,187	1,261,328	
1892	12,360,828	2,239,080	14,599,908	1,549,721	
1893	12,275,023	2,553,074	14,828,097	228,189	
1894	9,354,753	2,555,466	11,910,219		2,917,878
1895	10,563,423	3,120,456	13,683,879	1,773,660	
1896	9,544,259	3,368,349	12,912,608		771,271
1897	8,342,698	4,106,124	12,448,822		463,786
1898	8,805,557	5,252,598	14,058,155	1,609,333	
1899	9,167,874	6,741,060	15,908,934	1,850,799	
1900	9,966,872	9,457,777	19,426,649	3,517,715	
1901	9,831,476	10,489,814	20,321,290	894,641	
1902	10,489,619	13,439,648	23,929,267	3,607,977	
1903	10,012,335	14,560,931	24,573,266	643,979	
1904	8,037,360	16,546,455	24,583,815	10,549	
1905	6,825,125	19,009,532	25,834,657	1,250,842	

TABLE SHOWING ANNUAL PRODUCTION OF PICK AND MACHINE-MINED COAL, AND THE GAIN AND LOSS SINCE THE YEAR 1889 OR THE INTRODUCTION OF MINING MACHINERY.

Year.	Total Tons Pick Coal Produced Since 1889.	Gain.	Loss.	Total Tons Machine Coal Produced Since 1889.	Gain.	Loss.
1889	10,007,385			900,000		
1890	10,640,360	632,975		1,148,499	248,499	
1891	11,396,106	755,746		1,654,081	505,632	
1892	12,360,828	964,722		2,239,080	584,999	
1893	12,275,023		85,805	2,553,074	313,994	
1894	9,354,753		2,920,270	2,555,466	2,392	
1895	10,563,423	1,208,670		3,120,456	564,990	
1896	9,544,259		1,019,164	3,368,349	247,893	
1897	8,342,698		1,201,561	4,106,124	737,775	
1898	8,805,557	462,859		5,252,598	1,146,474	
1899	9,167,874	362,317		6,741,060	1,488,462	
1900	9,966,872	798,998		9,457,777	2,716,717	
1901	9,831,476		135,396	10,489,814	1,032,037	
1902	10,489,619	658,143		13,439,648	2,949,834	
1903	10,012,335		477,284	14,560,931	1,121,283	
1904	8,037,360		1,974,975	16,546,455	1,985,524	
1905	6,825,125		1,212,235	19,009,532	2,463,077	

TABLE SHOWING NUMBER OF REPORTS MADE TO THIS DEPARTMENT WHERE COAL COMPANIES REPORT POWDER SOLD, AND WHERE THEY DO NOT; ALSO NUMBER OF KEGS SOLD IN EACH COUNTY IN BOTH PICK AND MACHINE MINES.

Counties.	Number Reports Made Covering Powder Sold.	Number Reports Made Not Covering Powder Sold.	Number Kegs Reported Sold in Pick Mines.	Number Kegs Reported sold in Machine Mines.	Total Number Kegs Reported Sold.
Athens	33	18	1,195	13,045	14,240
Belmont	57	20	5,578	12,419	17,997
Carroll	20	2	2,040	1,520	4,560
Columbiana	28	7	5,493	1,967	7,460
Coshocton	12	8	4,486	802	5,288
Gallia	5	1	714		714
Guernsey	27	6	709	18,448	19,157
Harrison	14	20	1,065	933	1,998
Hocking	11	6	580	7,486	8,066
Holmes	4	4	128		128
Jackson	32	32	48,983	8,645	57,628
Jefferson	74	1	2,640	9,968	12,608
Lawrence	26	3	4,668	395	5,063
Mahoning	8	13	2,646		2,646
Medina	8	1	2,005		2,005
Meigs	19	5	3,680	1,736	5,416
Morgan	2			828	828
Muskingum	29	37	2,276	150	2,426
Noble	22	10	120	1,306	1,426
Perry	60	25	4,945	10,326	15,271
Portage	4		3,107	560	3,667
Senoto	3	1	327		327
Stark	47	16	19,831	2,658	22,489
Summit	12		3,863	305	4,168
Trumbull	3		153		153
Tuscarawas	65	15	16,547	2,670	19,217
Vinton	18		4,564	1,300	5,864
Washington	1		5,915		5,919
Wayne	9	1	52		52
	653	252	149,310	97,467	246,777

NOTE.

Number reports giving powder sold was 653, or 72%.

Number reports not giving powder sold was 252, or 28%.

This table only shows number of kegs sold by the Coal Companies, and does not cover powder bought from outside sources. It will show, however, counties where the most powder is used and the contrast between Pick and Machine mines.

TABLE SHOWING THE NUMBER OF MACHINE RUNNERS, SHOOTERS AND LOADERS, INSIDE AND OUTSIDE HANDS, NUMBER KEGS OF POWDER USED, AND TOTAL TONNAGE OF MACHINE MINES FOR 1905.

Counties.	Number of Cutters.	Number of Loaders.	Number of Inside Day Hands.	Number of Outside Day Hands.	Total Number Men Employed.	Kegs of Powder Used in Machine Mines.	Total Number Tons Machine-Mined Coal.	Per Cent. Machine-Mined Coal as Compared With Total Output in County.	Average No. Days Worked by Cutters.	Average No. Days Worked by Shooters and Loaders.
Athens	450	4,370	1,116	599	6,541	13,045	3,755,129	97.6	164.	162.2
Belmont	421	2,619	618	326	3,984	12,419	2,956,498	76.4	186.	184.
Carroll	52	258	76	45	431	1,520	174,115	73.8	148.	146.1
Columbiana	54	266	97	35	452	1,967	353,312	50.	222.7	225.3
Coshocton	46	202	87	42	377	802	145,029	37.3	180.	160.
Gallia	•	•	•	•	•	•	•	•	•	•
Guernsey	278	2,413	844	277	3,817	18,448	2,847,281	98.3	186.2	187.3
Harrison	36	272	38	32	378	983	224,638	55.0	166.5	162.5
Hocking	140	1,481	350	264	2,235	7,466	1,655,471	97.6	189.7	191.3
Holmes	•	•	•	•	•	•	•	•	•	•
Jackson	146	789	395	190	1,520	8,645	773,679	40.0	169.5	173.4
Jefferson	379	2,664	565	412	4,020	9,968	2,704,683	83.7	178.2	175.4
Lawrence	12	40	30	6	88	395	28,405	13.3	175.0	175.0
Mahoning	•	•	•	•	•	•	•	•	•	•
Medina	•	•	•	•	•	•	•	•	•	•
Meigs	40	214	77	46	377	1,736	180,142	48.6	227.0	206.2
Morgan	36	180	39	39	294	828	173,551	100.0	167.3	164.1
Muskingum	8	55	6	8	77	150	62,480	25.8	180.0	178.2
Noble	30	223	84	25	372	1,306	150,081	87.5	121.1	114.5
Perry	328	2,574	696	425	4,025	10,326	2,061,962	87.2	146.4	132.1
Portage	14	25	13	6	58	599	19,530	23.5	192.0	192.0
Scioto	•	•	•	•	•	•	•	•	•	•
Stark	35	135	48	37	255	2,658	292,394	26.1	157.4	158.8
Summit	6	25	7	7	45	315	29,700	17.9	134.0	134.0
Trumbull	•	•	•	•	•	•	•	•	•	•
Tuscarawas	87	358	48	39	532	2,670	317,883	23.4	201.6	193.6
Vinton	22	115	25	15	177	1,300	82,319	36.7	132.6	144.7
Washington	•	•	•	•	•	•	•	•	•	•
Wayne	•	•	•	•	•	•	•	•	•	•
Total	2,620	19,299	5,261	2,875	30,065	97,467	19,009,532			

NOTE —

Average number days worked by each Cutter during year was 173.5 days.

Average number days worked by each Loader during year was 160.0 days.

TABLE SHOWING COMPARISON FOR YEARS 1904 AND 1905 PERTAINING TO THE NUMBER OF MINING MACHINES IN OPERATION, AVERAGE NUMBER TONS OF RUN-OF-MINE CUT BY EACH CUTTER FOR THE YEAR AND FOR EACH DAY; ALSO NUMBER OF TONS CUT BY EACH MACHINE FOR THE YEAR AND FOR EACH DAY.

Counties.	No. Mining Machines in Use in 1904.	No. Mining Machines in Use in 1905.	Gain.	Loss.	Average Tons Run-of-Mine Cut by Each Cutter in 1904.	Average Tons Run-of-Mine Cut by Each Cutter in 1905.	Average Tons Run-of-Mine Cut by Each Cutter Per Day in 1904.	Average Tons Run-of-Mine Cut by Each Cutter per Day in 1905.	Average Tons Cut by Each Machine in 1904.	Average Tons Cut by Each Machine in 1905.	Average Tons Cut per Day by Each Machine in 1904.	Average Tons Cut per Day by Each Machine in 1905.
Athens	143	156	13	....	9,134	8,345	58	52.3	26,190	24,071	166	147
Belmont	143	185	42	....	6,206	7,022	36	37.7	13,497	15,981	78	86
Carroll	33	24	....	9	4,477	3,348	26	22.6	8,954	7,255	53	49
Columbiana	32	28	....	4	6,418	6,543	22	29.4	10,630	12,618	44	57
Coshocton	10	25	15	....	2,917	3,153	21	17.5	8,751	5,801	64	32
Gallia	*	*	*	*	*	*	*	*	*	*	*	*
Guernsey	96	93	....	3	11,284	10,242	56	55.0	31,030	30,616	154	164
Harrison	4	18	14	....	4,775	6,247	27	37.5	7,162	12,494	41	74
Hocking	54	42	....	12	12,347	11,825	63	62.3	34,069	39,416	175	207
Holmes	*	*	*	*	*	*	*	*	*	*	*	*
Jackson	82	82	....	....	4,900	5,299	27	31.2	9,442	9,435	53	56
Jefferson	152	182	30	....	5,748	7,374	34	41.4	12,592	15,355	74	86
Lawrence	6	6	....	....	3,806	2,367	17	13.5	6,344	4,734	29	27
Mahoning	*	*	*	*	*	*	*	*	*	*	*	*
Medina	*	*	*	*	*	*	*	*	*	*	*	*
Meigs	5	12	7	....	2,719	4,503	27	19.8	5,438	15,012	54	66
Morgan	9	12	3	....	3,639	4,821	23	28.8	9,300	14,463	57	86
Muskingum	3	7	4	....	2,151	7,810	22	43.4	4,302	8,926	43	50
Noble	11	13	2	....	4,929	5,008	29	41.3	12,547	11,545	75	95
Perry	135	153	18	....	6,116	6,378	53	43.6	14,906	13,673	111	93
Portage	*	5	5	....	*	1,396	*	7.3	*	3,906	*	20
Scioto	*	*	*	*	*	*	*	*	*	*	*	*
Stark	29	27	....	2	2,404	5,783	21	36.7	4,725	7,496	42	47
Summit	*	3	3	....	*	3,450	*	27.7	*	6,900	*	51
Trumbull	*	*	*	*	*	*	*	*	*	*	*	*
Tuscarawas	19	59	40	....	2,782	3,654	37	18.1	5,272	5,388	69	27
Vinton	9	14	5	....	3,506	3,742	26	23.2	7,013	5,880	53	44
Washington	*	*	*	*	*	*	*	*	*	*	*	*
Wayne	*	*	*	*	*	*	*	*	*	*	*	*
Total	975	1,146	201	30	.....	.....	.....	.....	.....	.....	.....	.....

NOTE—

Number mining machines in operation in 1905 1,146
 Number mining machines in operation in 1904 975

Increase for 1905, as compared with 1904..... 171

Average number tons cut by each cutter for the year 1905..... 7,255 tons
 Average number tons cut by each cutter for the year 1904..... 7,204 tons

Showing increase, as compared with year 1904, of..... 51 tons

Average number tons cut by each cutter per day in 1904..... 42.0 tons
 Average number tons cut by each cutter per day in 1905..... 41.8 tons

Showing decrease, as compared with year 1904, of..... .2 tons

Average number tons cut by each machine for year 1904 16,971 tons
 Average number tons cut by each machine for year 1905 16,588 tons

Showing decrease, as compared with year 1904, of 383 tons

Average number tons cut by each machine per day in 1904 99 tons
 Average number tons cut by each machine per day in 1905 96 tons

Showing decrease, as compared with year 1904, of..... 3 tons

TABLE SHOWING NUMBER OF DAYS WORKED, SHOOTERS AND LOADERS, AND TONS PRODUCED BY EACH
PER YEAR AND PER DAY, IN 1905, AS COMPARED WITH THE YEAR 1904.

Counties.	Number Days Pick Miners		Number Days Shooters and		Number Days Machine Run-		Average No. Tons Lump		Average No. Tons Lump		Average No. Tons Lump		Average Tons Lump Coal		Average Tons Lump Coal		Average Tons Lump Coal		Average Tons Lump Coal	
	1904.	1905.	1904.	1905.	1904.	1905.	Coal Produced by Each Pick Miner in 1904.	Coal Produced by Each Pick Miner in 1905.	Coal Produced by Each Pick Miner in 1904.	Coal Produced by Each Pick Miner in 1905.	Coal Produced by Each Pick Miner in 1904.	Coal Produced by Each Pick Miner in 1905.	Loaded by Shooters and Loaders for Year 1904.	Loaded by Shooters and Loaders for Year 1905.	Loaded by Shooters and Loaders for Year 1904.	Loaded by Shooters and Loaders for Year 1905.	Loaded by Shooters and Loaders for Year 1904.	Loaded by Shooters and Loaders for Year 1905.	Loaded by Shooters and Loaders for Year 1904.	Loaded by Shooters and Loaders for Year 1905.
Athens	164	156.0	166	162.2	158	164	597	562	3.6	3.6	3.6	3.6	684	618	4.0	3.8	4.0	3.8	4.0	3.8
Belmont	184	178.7	168	184.0	173	186	509	548	2.8	2.8	2.8	2.8	682	745	4.0	4.0	4.0	4.0	4.0	4.0
Carroll	151	176.2	169	146.1	170	148	334	438	2.2	2.2	2.2	2.2	593	457	3.5	3.1	3.5	3.1	3.5	3.1
Columbiana	142	223.9	168	225.3	242	222.7	337	465	2.3	2.3	2.3	2.3	527	885	3.1	3.9	3.1	3.9	3.1	3.9
Coshocton	173	211.4	136	160.0	136	180.0	406	468	2.3	2.3	2.3	2.3	347	459	2.4	2.9	2.4	2.9	2.4	2.9
Gallia	143	141.4	..	..	..	..	211	289	1.5	1.5	1.5	1.5	..	..	..	..	..	..	..	..
Guernsey	131	173.0	207	187.3	201	186.2	336	387	2.5	2.5	2.5	2.5	915	819	4.4	4.4	4.4	4.4	4.4	4.4
Harrison	137	173.0	176	162.5	176	166.5	492	495	3.5	3.5	3.5	3.5	487	545	2.7	3.4	2.7	3.4	2.7	3.4
Hocking	179	164.7	191	191.3	194	189.7	749	527	4.2	4.2	4.2	4.2	883	805	4.6	4.2	4.6	4.2	4.6	4.2
Holmes	184	175.5	..	..	..	..	351	409	2.0	2.0	2.0	2.0	..	..	..	..	..	..	..	..
Jackson	161	165.3	191	173.4	178	169.5	451	487	2.8	2.8	2.8	2.8	809	722	4.2	4.2	4.2	4.2	4.2	4.2
Jefferson	155	160.4	156	175.4	170	178.2	370	394	2.3	2.3	2.3	2.3	558	711	3.6	4.1	3.6	4.1	3.6	4.1
Lawrence	153	176.5	220	175.0	220	175.0	361	374	2.3	2.3	2.3	2.3	533	497	2.4	2.8	2.4	2.8	2.4	2.8
Mahoning	180	217.7	..	..	..	..	821	936	1.8	1.8	1.8	1.8	..	..	..	..	..	..	..	..
Medina	161	162.1	131	206.2	191	..	308	289	2.6	2.6	2.6	2.6	244	566	1.8	..	1.8	..	1.8	..
Meigs	96	197.4	116	164.1	100	167.3	249	566	2.9	2.9	2.9	2.9	625	713	5.4	4.3	5.4	4.3	5.4	4.3
Morgan	160	148.3	80	178.2	161	180.0	285	349	2.3	2.3	2.3	2.3	888	832	3.8	4.6	3.8	4.6	3.8	4.6
Muskingum	123	139.7	230	114.5	168	121.1	287	326	2.3	2.3	2.3	2.3	444	444	3.8	3.9	3.8	3.9	3.8	3.9
Noble	137	186.6	137	132.1	134	146.4	484	438	3.5	3.5	3.5	3.5	559	585	4.0	4.4	4.0	4.4	4.0	4.4
Perry	137	186.6	137	132.1	134	146.4	484	438	3.5	3.5	3.5	3.5	559	585	4.0	4.4	4.0	4.4	4.0	4.4

TABLE SHOWING NUMBER OF DAYS WORKED, SHOOTERS, AND LOADERS, ETC. — Concluded.

Counties	Number Days Pick Miners Worked in 1904.	Number Days Pick Miners Worked in 1905.	Number Days Shooters and Loaders Worked in 1904.	Number Days Shooters and Loaders Worked in 1905.	Number Days Machine Runners Worked in 1904.	Number Days Machine Runners Worked in 1905.	Average No. Tons Lump Coal Produced by Each Pick Miner in 1904.	Average No. Tons Lump Coal Produced by Each Pick Miner in 1905.	Average No. Tons Lump Coal Produced by Each Pick Miner Per Day in 1904.	Average No. Tons Lump Coal Produced by Each Pick Miner Per Day in 1905.	Average Tons Lump Coal Loaded by Shooters and Loaders for Year 1904.	Average Tons Lump Coal Loaded by Shooters and Loaders for Year 1905.	Average Tons Lump Coal Loaded by Shooters and Loaders per Day in 1904.	Average Tons Lump Coal Loaded by Shooters and Loaders per Day in 1905.
Portage	145	173.0	192.2	192.0	192.0	192.0	363	350	2.5	2.0	574	574	4.5	3.0
Scioto	140	130.5	158.8	157.4	157.4	157.4	375	347	2.6	2.7	567	567	4.5	6.2
Stark	144	163.7	134.0	134.0	134.0	134.0	324	407	2.2	2.4	556	556	4.1	4.1
Summit	131	151.8	193.6	193.6	193.6	193.6	320	360	2.2	1.9	586	586	3.0	3.0
Trumbull	113	94.0	144.7	144.7	144.7	144.7	252	183	2.2	2.6	496	496	2.7	3.4
Tuscarawas	173	167.1	142	142	142	142	436	436	2.5	2.8	482	482	3.0	3.0
Vinton	158	156.6	153	153	153	153	395	444	2.5	1.2	414	414	2.7	3.4
Washington	220	260.0					300	308	1.3	2.0				
Wayne	127	131.9					388	265	3.0	2.0				

NOTE.

Average number days worked by Pick Miners in 1904 was..... 159 days
 Average number days worked by Pick Miners in 1905 was..... 169 "
 Average number days worked by Shooters and Loaders in 1904 was..... 169 "
 Average number days worked by Shooters and Loaders in 1905 was..... 169 "
 Average number days worked by Machine Runners in 1904 was..... 171 "
 Average number days worked by Machine Runners in 1905 was..... 173.5 "

Average number tons mined by each Pick Miner for year 1904 was.....	410.	tons
Average number tons mined by each Pick Miner for year 1905 was.....	495.5	"
Average number tons mined by each Pick Miner per day in 1904 was.....	2.6	"
Average number tons mined by each Pick Miner per day in 1905 was.....	2.58	"
Average number tons loaded by Shooters and Loaders for 1904 was.....	684.	"
Average number tons loaded by Shooters and Loaders for 1905 was.....	686.	"
Average number tons loaded by Shooters and Loaders per day in 1904 was.....	4.	"
Average number tons loaded by Shooters and Loaders per day in 1905 was.....	4.06	"
Average number tons cut by Machine Cutters for year 1904 was.....	5188.	"
Average number tons cut by Machine Cutters for year 1905 was.....	5053.	"
Average number tons cut by Machine Cutters per day in 1904 was.....	30.	"
Average number tons cut by Machine Cutters per day in 1905 was.....	29.1	"

TABLE SHOWING TOTAL TONS OF "RUN-OF-MINE" COAL PRODUCED, AVERAGE TONS PRODUCED IN BOTH PICK AND MACHINE MINES FOR EACH MINER, CUTTER AND LOADER FOR THE YEAR AND FOR EACH DAY.

Counties.	No. Tons Mined With Picks.	No. Tons Produced by Machines.	Average No. Tons Run-of-Mine Mined by Each Miner for Year in Pick Mines.	Average No. Tons Run-of-Mine Cut by Each Cutter for Year.	Average No. Tons Run-of-Mine Loaded for Year by Each Loader.	Average No. Tons Run-of-Mine Mined by Each Pick Miner per Day.	Average No. Tons Run-of-Mine Cut by Each Cutter per day.	Average No. Tons Run-of-Mine Loaded by Each Loader for Each Working Day.
Athens	93,311	3,755,129	811	8,345	858	5.2	52.3	5.4
Belmont	915,348	2,956,498	843	7,022	1,129	4.7	37.7	4.1
Carroll	61,711	174,115	683	3,348	675	3.8	23.6	4.6
Columbiana	352,512	353,312	703	3,543	1,328	3.1	29.4	5.9
Coshocton	243,903	145,029	780	3,153	718	2.7	17.5	4.2
Gallia	18,551	.....	395	.....	.....	2.8	.....	.....
Guernsey	49,475	2,847,281	603	10,242	1,178	2.5	55.0	6.3
Harrison	177,791	224,888	804	6,247	827	4.6	37.5	5.1
Hocking	40,292	1,655,471	775	11,825	1,118	4.7	68.3	5.8
Holmes	24,820	.....	591	.....	.....	3.4	.....	.....
Jackson	1,114,225	773,679	723	5,239	981	4.4	31.2	5.6
Jefferson	543,116	2,794,683	598	7,374	1,049	3.7	41.4	6.0
Lawrence	184,544	28,405	523	2,867	710	3.0	18.5	4.1
Mahoning	117,074	.....	569	.....	.....	2.6	.....	.....
Medina	91,205	.....	426	.....	.....	2.6	.....	.....
Meigs	190,445	180,142	839	4,503	842	4.2	19.8	4.1
Morgan .....	.....	173,551	.....	4,821	964	.....	23.9	5.9
Maskingum	179,531	62,480	511	7,810	1,136	3.6	43.4	4.4
Noble	21,428	150,081	446	5,063	644	3.2	41.3	5.3
Perry	307,608	2,091,962	652	6,378	813	4.8	43.6	6.1
Portage	64,073	19,530	521	1,395	781	3.0	7.3	4.1
Scioto	9,013	.....	474	.....	.....	3.6	.....	.....
Stark	572,438	202,394	539	5,783	1,199	3.3	36.7	9.4
Summit	94,829	20,700	491	3,450	832	3.2	27.7	6.2
Trembulla	3,591	.....	224	.....	.....	2.4	.....	.....
Tuscarawas	1,043,511	317,883	683	3,654	888	4.1	18.1	4.6
Vinton	141,956	82,319	648	3,742	716	2.4	28.2	4.9
Washington	3,600	.....	514	.....	.....	2.0	.....	.....
Wayne	165,224	.....	387	.....	.....	2.9	.....	.....
Total	6,835,125	19,009,532	.....	.....	.....	.....	.....	.....

Summary.

Average tons run of mine cut by each cutter for year	725.5
Average tons run of mine loaded by each loader for year	99.5
Average tons run of mine cut by each cutter per day	41.8
Average tons run of mine loaded by each loader per day	5.82
Average number of days worked by cutter during the year	173.5
Average number of days worked by loader during the year	169.0

MACHINES, THE AVERAGE NUMBER, TONS LUMP COAL PRODUCED BY EACH PICK MINER, LOADER AND CUTTER FOR YEAR 1905, THE NUMBER OF DAY HANDS EMPLOYED AND THE AVERAGE NUMBER OF TONS OF RUN-OF-MINE PRODUCED FOR EACH.

Counties.	Total Tons Pick Coal Mined in 1905.	Total Tons Machine Coal Mined in 1905.	Total Tons Pick and Machine Coal Mined in 1905.	Per Cent. of Machine-Mined Coal in 1905.	Total Number of Pick Miners.	Total Number of Machine Shooters and Loaders.	Average Number Days Worked in Pick Mines in 1905.	Average Number Days Worked in Machine Mines in 1905.	Average Number Tons Lump Coal Mined for Each Pick Miner for 1905.	Average Number Tons Lump Coal Loaded by Each Shooter and Loader for 1905.	Average No. Tons Lump Coal Cut by Each Cutter for Year 1905.	Total No. Day Hands, Inside and Outside, in Both Pick and Machine Mines.	Average No. Tons Run-Of-Mine Produced for Each Day Hand in Both Pick and Machine Mines.
Athens	93,311	3,755,129	3,848,440	97.6	115	4,376	156	162	592	618	6,012	1,745	2,905
Belmont	915,348	2,956,498	3,871,846	76.4	1,086	2,619	170	184	548	745	4,032	1,232	3,493
Carroll	61,711	174,115	235,826	73.8	93	268	176	146	438	457	2,966	159	1,433
Columbiana	532,512	353,312	705,824	60.0	501	266	924	225	465	585	4,359	270	2,614
Coshocton	213,943	145,039	358,982	37.3	309	202	211	160	468	459	2,015	240	1,621
Gallia	18,551	18,551	18,551	100.0	47	202	141	141	389	459	2,015	15	1,237
Guernsey	49,475	2,847,981	2,897,456	98.3	89	2,418	173	187	337	510	7,139	1,145	1,530
Harrison	177,701	924,888	1,102,589	85.9	221	272	173	162	495	545	4,118	137	2,947
Hocking	40,292	1,655,471	1,695,763	97.6	52	1,481	168	191	527	505	8,514	623	2,719
Holmes	24,830	94,830	94,830	100.0	42	176	176	176	409	409	.....	13	1,939
Jackson	1,114,225	773,679	1,887,904	40.0	1,541	789	163	173	487	722	3,900	1,432	1,974
Jefferson	543,116	3,337,799	3,880,915	83.7	895	2,664	160	175	394	711	5,000	1,229	2,716
Lawrence	184,544	212,949	397,493	13.3	353	40	218	175	374	407	1,657	151	1,410
Mahoning	117,074	117,074	117,074	100.0	209	.....	162	.....	336	.....	.....	60	1,861
Medina	91,206	31,205	122,411	43.6	214	214	162	.....	289	.....	.....	50	1,824
Meigs	180,445	370,587	550,032	100.0	327	214	197	306	566	566	3,028	221	1,677
Morgan	.....	173,551	173,551	100.0	.....	180	164	164	.....	.....	.....	78	2,225
Muskingum	179,531	62,480	242,011	25.8	332	160	148	178	349	832	5,723	115	2,104
Noble	21,428	150,081	171,509	87.3	48	233	140	114	395	444	3,452	125	1,372
Perry	307,608	2,091,982	2,399,590	87.2	472	2,574	137	132	438	585	4,591	1,246	1,926
Portage	64,073	19,530	83,603	23.5	123	35	173	192	350	574	1,025	97	892
Scioto	9,013	9,013	9,013	100.0	19	.....	139	139	347	.....	.....	11	819
Stark	572,438	292,394	864,832	26.1	1,062	135	164	159	407	979	3,777	435	1,781
Summit	94,829	20,700	115,529	17.9	193	35	152	134	360	566	2,317	87	1,328
Trumbull	3,591	3,591	3,591	100.0	16	.....	94	94	183	.....	.....	5	718
Tuscarawas	1,043,511	317,883	1,361,394	23.4	1,527	358	167	194	436	586	2,412	602	2,261
Vinton	141,956	85,319	227,275	36.7	219	115	157	145	444	496	2,592	109	2,057
Washington	3,600	3,600	3,600	100.0	7	.....	290	290	308	.....	.....	3	1,200
Wayne	165,224	165,224	165,224	100.0	427	.....	132	132	295	.....	.....	124	1,332
Total	6,825,125	19,009,532	25,834,657	74%	10,445	19,298	*169	*169	*435	*686	*5,063	11,829	*2,184

* Average.

PERSONS EMPLOYED.

(75)

PERSONS ENGAGED IN THE PRODUCTION OF COAL

In the year 1905, the total number of persons employed in and around the mines and who were engaged in the production of coal, amounted to 44,193, showing a decrease of 1,641 persons employed as compared with the year 1904. This is no doubt due to the fact that the financial earning capacity of the coal miner has not been an incentive or stimulus for him to remain in this occupation if other and better opportunities presented themselves to earn a living. The fact that the mines of Ohio only worked an average of 169 days in 1904 and 1905 alone will bear out the facts of the above statement.

The employes engaged in the production of coal are classified as follows:

First, the machine cutters, who numbered 2,620 in 1905 as compared with 2,297 in 1904, showing an increase of 323, for which the increased tonnage of machine-mined coal is accountable. Cutters are men who operate the machine when undercutting the seams of coal.

Second, the miners, who number 29,744. Of this number, 10,445 are considered pick miners, who, without the aid of the machine, mine and shoot their own coal and afterwards load it on cars. The remainder of the above number are shooters and loaders, whose work consists in shooting and loading the coal after it is undercut by the machines.

Third, the inside day hands, who number 7,543, some of whom are employed to haul the coal, others to preserve and repair the property of the Company inside, and perform all kinds of labor necessary inside the mines.

Fourth, outside day hands, who number 4,286. Some of these men are engaged in taking care of the coal after it comes to the outside to be placed on board railroad cars, others are employed in running machinery or at any other kind of work that is necessary in the production of coal.

Athens County employs the greatest number of men, 6,686; Belmont, which is second, employs 5,378; Perry, third, 4,620; Jefferson, 5,180, and Guernsey, 3,923.

The following are tables giving information on the subject:

SHOWING TOTAL NUMBER OF PICK MINERS AND LOADERS,
SIDE AND OUTSIDE DAY HANDS, AND MACHINE RUNNERS
EMPLOYED, BY COUNTIES, DURING THE YEAR 1905.

Counties.	Pick Miners and Loaders.	Inside Day Hands.	Outside Day Hands.	Machine Runners.	Total Employees.
.....	4,491	1,132	613	450	6,686
.....	3,705	818	434	421	5,378
.....	351	95	64	52	562
ana	767	175	95	54	1,091
on	511	151	89	46	797
.....	47	8	7	.....	62
y	2,500	854	291	278	3,923
l	493	72	65	36	666
.....	1,533	354	269	140	2,296
.....	42	6	7	.....	55
.....	2,530	1,042	440	146	3,958
l	3,572	710	519	379	5,180
e	393	107	44	12	556
g	209	35	25	.....	269
.....	214	24	26	.....	264
.....	441	135	86	40	702
.....	180	39	39	36	294
um	387	60	55	8	510
.....	281	92	33	30	436
.....	3,046	770	476	328	4,620
.....	148	70	27	14	259
.....	19	5	6	.....	30
.....	1,197	251	184	35	1,667
.....	218	41	46	6	311
ll	16	3	2	.....	21
was	1,885	356	246	87	2,574
.....	334	67	42	22	465
gton	7	2	1	.....	10
.....	427	69	55	.....	551
	29,744	7,543	4,286	2,620	44,193

	Pick Miners and Loaders.	Inside Day Day Hands.	Outside Day Hands.	Machine Runners.	Total Employees.
ners employed.....	10,445	2,282	1,411	.....	14,138
miners employed....	19,299	5,261	2,875	2,620	30,055
	29,744	7,543	4,286	2,620	44,193

TABLE SHOWING TOTAL NUMBER PICK MINERS, INSIDE AND OUTSIDE DAY HANDS, TOTAL PICK TONNAGE, THE PER CENT. AS COMPARED WITH TOTAL OUTPUT OF EACH COUNTY, AND NUMBER OF DAYS MINERS WORKED IN EACH COUNTY.

Counties.	Number Pick Miners Employed.	Number inside Day Hands Employed.	Number Outside Day Hands employed.	Total Number Persons Engaged in Pick Mining.	Kegs Powder Used in Pick Mining.	Total Tons Coal Produced by Pick Miners.	Per Cent. of Pick Mined Coal as Compared with Total Output in County.	Average No. Days Worked By Each Miner During Year.
Athens	115	16	14	145	1,195	93,311	2.4	156.0
Belmont	1,086	200	108	1,394	5,578	915,348	23.6	178.7
Carroll	93	19	19	131	3,040	61,711	26.2	176.2
Columbiana	501	78	60	639	5,493	352,512	50.0	223.9
Coshocton	309	64	47	420	4,486	243,903	62.7	211.4
Gallia	47	8	7	62	714	18,551	100.0	141.4
Guernsey	82	10	14	106	709	49,475	1.7	173.0
Harrison	221	34	33	288	1,065	177,791	44.1	173.0
Hocking	52	4	5	61	580	40,292	2.4	164.7
Holmes	42	6	7	55	128	24,820	100.0	175.5
Jackson	1,541	647	250	2,438	48,983	1,114,225	60.0	165.3
Jefferson	908	145	107	1,160	2,640	543,116	16.3	160.4
Lawrence	353	77	38	468	4,668	184,514	86.7	176.5
Mahoning	209	35	25	269	2,646	117,074	100.0	217.7
Medina	214	24	26	264	2,005	91,205	100.0	162.1
Meigs	227	58	40	325	3,680	190,445	51.4	197.4
Morgan								
Muskingum	332	54	47	433	2,276	179,531	74.2	148.3
Noble	48	8	8	64	120	21,428	12.5	139.7
Perry	472	72	51	595	4,945	307,608	12.8	136.6
Portage	123	57	21	201	3,107	64,073	76.5	173.0
Scioto	19	5	6	30	327	9,013	100.0	130.5
Stark	1,062	203	147	1,412	19,831	572,438	73.9	163.7
Summit	193	34	39	266	3,863	94,829	82.1	151.8
Trumbull	16	3	2	21	153	3,591	100.0	94.0
Tuscarawas	1,527	308	207	2,042	16,547	1,043,511	76.6	167.1
Vinton	219	42	27	288	4,564	141,956	63.3	156.6
Washington	7	2	1	10	52	3,600	100.0	260.0
Wayne	427	69	55	551	5,915	165,224	100.0	131.9
	10,445	2,282	1,411	14,138	149,310	6,825,125		

NOTE

Average number of days worked by each miner during year was 169 days.
Per cent. of pick coal as compared with total output for state is 26%.

TABLE SHOWING THE TOTAL NUMBER OF SHOOTERS AND LOADERS, CUTTERS, INSIDE AND OUTSIDE DAY HANDS, AND THE TOTAL NUMBER OF PERSONS EMPLOYED IN AND AROUND THE MINES; ALSO THE TONS PRODUCED FOR EACH PERSON EMPLOYED.

Counties.	Total Number Pick Miners, Shooters and Loaders.	Total Number Inside Day Hands.	Total Number Outside Day Hands.	Total Number Machine Runners.	Total Number All Persons Engaged in Production of Coal.	Total Tons of Powder Used in Each County.	Total Number Tons Produced in Both Pick and Machine Mines.	No. Tons Produced for Every Person Employed in and Around the Mines, 1905.
Athens	4,491	1,132	613	450	6,686	14,240	3,848,440	575
Belmont	3,705	818	434	421	5,378	17,997	3,871,846	720
Carroll	351	95	64	52	562	4,560	235,826	420
Columbiana	767	175	95	54	1,091	7,460	705,824	647
Coshocton	511	151	89	46	797	5,288	388,932	488
Gallia	47	8	7	.....	62	714	18,551	300
Guernsey	2,500	854	291	278	3,923	19,157	2,896,756	738
Harrison	493	72	65	36	666	1,998	402,679	605
Hocking	1,533	354	269	140	2,296	8,066	1,695,763	738
Holmes	42	6	7	.....	55	128	24,820	451
Jackson	2,330	1,042	440	146	3,958	57,628	1,887,904	477
Jefferson	3,572	710	519	379	5,180	12,608	3,337,799	644
Lawrence	393	107	44	12	556	5,063	212,919	383
Mahoning	209	35	25	.....	269	2,646	117,074	435
Medina	214	24	26	.....	264	2,005	91,205	345
Meigs	441	135	86	40	702	5,416	370,587	528
Morgan	180	39	39	36	294	828	173,551	590
Muskingum	387	60	55	8	510	2,426	242,011	475
Noble	281	92	33	30	436	1,426	171,509	393
Peery	3,046	770	476	328	4,620	15,271	2,399,570	519
Portage	148	70	27	14	259	3,667	83,603	323
Scioto	19	5	6	.....	30	327	9,013	300
Stark	1,197	251	184	35	1,667	22,489	774,832	465
Summit	218	41	46	6	311	4,168	115,529	371
Trumbull	16	3	2	.....	21	153	3,591	171
Tuscarawas	1,885	356	246	87	2,574	19,217	1,361,394	529
Vinton	334	67	42	22	465	5,864	224,275	482
Washington	7	2	1	.....	10	52	3,600	360
Wayne	427	69	55	.....	551	5,915	165,224	300
	29,744	7,543	4,286	2,620	44,193	246,777	25,834,657	.....

NOTE:—Average number of tons produced by each person engaged in the production of coal was 585 tons.

TABLE SHOWING THE NUMBER OF PERSONS ENGAGED IN THE PRODUCTION OF COAL IN THE SEVERAL COUNTIES DURING THE YEAR 1905, AS COMPARED WITH 1904, AND THE GAINS AND LOSSES IN EACH COUNTY.

Counties.	No. Pick Miners, Shooters and Loaders Employed in 1904.	No. Pick Miners, Shooters and Loaders Employed in 1905.	Machine Runners, 1904.	Machine Runners, 1905.	Inside Day Hands, 1904.	Inside Day Hands, 1905.	Outside Day Hands, 1904.	Outside Day Hands, 1905.	Total No. Employees, 1904.	Total No. Employees, 1905.	Gain.	Loss.
Athens	4,214	4,491	410	450	1,316	1,132	795	613	6,736	6,686	50	50
Belmont	3,626	3,705	311	421	677	818	447	434	5,062	5,378	316	.....
Carroll	455	351	66	52	147	95	70	64	739	562	177	177
Columbiana	1,141	767	53	54	212	175	154	95	1,560	1,091	469	469
Coshocton	537	511	30	46	160	151	104	89	831	797	34	34
Gallia	72	47	.....	.....	15	8	11	7	99	62	37	37
Guernsey	2,441	2,500	264	278	976	854	305	291	3,987	3,923	64	64
Harrison	519	493	6	36	53	72	53	65	632	666	34	.....
Hocking	1,664	1,583	149	140	15	354	12	269	2,481	2,296	185	185
Holmes	62	42	.....	.....	417	6	251	7	90	55	35	35
Jackson	2,532	2,330	158	146	1,059	1,042	446	440	4,196	3,958	238	238
Jefferson	3,444	3,572	333	379	654	710	596	519	5,028	5,180	152	.....
Lawrence	369	393	10	12	77	107	41	44	497	556	59	59
Mahoning	153	209	.....	.....	30	35	28	25	211	269	58	58
Medina	204	214	.....	.....	38	24	31	26	273	264	9	9
Meigs	600	441	10	40	146	135	110	86	867	702	165	165
Morgan	97	180	23	36	31	39	25	39	176	294	118	.....
Muskingum	495	387	6	8	79	60	75	55	656	510	146	146
Noble	149	281	28	30	60	92	24	33	261	436	175	.....
Perry	3,437	3,046	329	328	772	770	492	476	5,031	4,620	411	411
Portage	197	148	.....	14	98	70	47	27	337	259	78	78
Scioto	24	19	.....	.....	8	5	6	6	39	30	9	9
Stark	1,545	1,197	57	35	313	251	267	184	2,183	1,667	516	516
Summit	199	218	.....	6	43	41	42	46	285	311	26	.....
Trumbull	24	16	.....	.....	4	3	3	2	32	21	11	11
Tuscarawas	1,890	1,885	36	87	428	356	270	246	2,625	2,574	51	51
Vinton	459	334	18	22	76	67	60	42	613	465	148	148
Washington	8	7	.....	.....	3	2	2	1	13	10	3	3
Wayne	217	427	.....	.....	39	69	24	55	294	551	257	.....
Total	29,834	29,744	2,297	2,620	7,950	7,543	4,809	4,286	45,834	44,193	1,641	1,641

NOTE —

Total loss in year 1905 as compared with 1904, was 1,641 men.

Counties.	Average No. Days Worked in Pick Mines for Year.	Number Day Hands Employed in Pick Mines.	Average No. Tons Produced for Each Day Hand for Year.	Average No. Tons Produced for Each Day Hand per Day.	Average No. Days Worked in Machine Mines.	Number Day Hands Employed in Machine Mines.	Average No. Tons Produced for Each Day Hand for Year.	Average No. Tons Produced for Each Day Hand per Day.	Total Number Day Men Employed for Year 1905.	Total Tons Produced All Grades.	Average Tons Mined for Each Day Hand for the Year in Both Pick and Machine Mines.
Athens	156.0	80	3,110	20	162.2	1,715	2,190	14	1,745	8,848,440	2,205
Belmont	176.7	308	2,972	17	184.0	944	3,132	17	1,252	3,871,846	3,093
Carroll	176.2	98	1,624	9	146.1	121	1,439	10	159	235,826	1,483
Columbia	223.9	138	2,554	11	225.3	132	2,677	17	270	705,824	2,614
Coshocton	211.4	111	2,197	10	160.0	129	1,124	7	240	388,932	1,621
Gallia	141.4	15	1,237	9	.....	.....	.....	.....	15	18,551	1,387
Guernsey	173.0	24	2,061	12	187.3	1,121	2,540	14	1,145	2,896,756	2,550
Harrison	173.0	67	2,654	15	162.5	70	3,213	20	137	402,679	2,947
Hocking	164.7	9	4,477	27	191.3	614	2,696	14	623	1,695,763	2,712
Holmes	175.5	13	1,909	19	.....	.....	.....	.....	13	24,820	1,909
Jackson	165.3	897	1,242	8	173.4	585	1,323	8	1,482	1,887,904	1,274
Jefferson	160.4	252	2,155	13	175.4	977	2,860	16	1,229	3,837,799	2,716
Lawrence	176.5	115	1,605	9	175.0	36	789	5	151	212,949	1,410
Mahoning	217.7	60	1,951	9	.....	.....	.....	.....	60	117,074	1,951
Medina	162.1	50	1,824	11	.....	.....	.....	.....	50	91,205	1,824
Meigs	197.4	98	1,943	10	206.2	123	1,465	7	221	370,587	1,677
Morgan .....	.....	.....	.....	.....	164.1	78	2,225	14	78	173,551	2,225
Muskingum	148.3	101	1,778	12	178.2	14	4,463	25	115	242,011	2,104
Noble	159.7	16	1,339	10	114.5	109	1,377	12	125	171,509	1,372

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TABLE SHOWING NUMBER OF DAY HANDS EMPLOYED, ETC.—Concluded.

Counties.	Average No. of Days Worked in Pick Mines for Year.		Number Day Hands Em- ployed in Pick Mines.	Average No. Tons Produced for Each Day Hand for Year.		Average No. Tons Produced for Each Day Hand per Day.		Average No. Days Worked in Machine Mines.	Number Day Hands Em- ployed in Machine Mines.	Average No. Tons Produced for Each Day Hand for Year.		Average No. Tons Produced for Each Day Hand per Day.		Total Number Day Men Em- ployed for Year 1903.	Total Tons Produced All Grades.	Average Tons Mined for Each Day Hand for the Year in Both Pick and Machine Mines.
	Average No. of Days Worked in Pick Mines for Year.	Number Day Hands Em- ployed in Pick Mines.		Average No. Tons Produced for Each Day Hand for Year.	Average No. Tons Produced for Each Day Hand per Day.	Average No. Days Worked in Machine Mines.	Number Day Hands Em- ployed in Machine Mines.			Average No. Tons Produced for Each Day Hand for Year.	Average No. Tons Produced for Each Day Hand per Day.					
Perry	136.6	123	2,501	18	132.1	1,123	1,863	14	1,246	2,399,570	1,926					
Portage	173.0	78	821	5	192.2	19	1,028	5	97	83,603	862					
Scioto	130.5	11	819	6					11	9,013	819					
Stark	163.7	350	1,636	10	158.8	85	2,381	18	435	774,832	1,781					
Summit	151.8	73	1,299	9	134.0	14	1,479	11	87	115,529	1,328					
Trumbull	94.0	5	718	6					5	3,591	718					
Tuscarawas	167.1	515	2,026	12	193.6	87	3,654	19	602	1,361,394	2,261					
Vinton	156.6	69	2,057	13	144.7	40	2,058	14	109	224,275	2,057					
Washington	260.0	3	1,200	14					3	3,600	1,200					
Wayne	131.9	124	1,332	10					124	165,224	1,332					
Total		3,693				8,136			11,829	25,834,657						

NOTE.

Average tons produced for each day hand for the year in Pick mines..... 1,848 tons
 Average tons produced for each day hand per day in Pick mines..... 11 tons
 Average tons produced for each day hand for the year in Machine mines..... 2,386 tons
 Average tons produced for each day hand per day in Machine mines..... 14 tons
 Average tons produced for each day hand in the state for the year..... 2,164 tons
 Average tons produced for each day hand in the state per day..... 13 tons

PRODUCTION AND AVERAGE EARNINGS OF PICK MINERS,
CUTTERS, SHOOTERS AND LOADERS FOR THE YEAR
1905.

In computing the days worked at all the mines, also the number of tons produced by all the miners, we find that the pick mines of Ohio worked 169 days and the average tonnage for each miner for the year was 435 tons of Lump coal, or 2.58 tons for each working day.

The mining price for pick mining in 1905 was 85c per ton, which would make the average earnings per day about \$2.20, or a total for the year of about \$372.00. These figures show that the daily earnings decreased about 10c per day over the year 1904, while the yearly earnings increased about \$6.00, which is due to the increased number of days worked in 1905 as compared with 1904. In these figures the amount paid for yardage and other dead work is not included.

The machine runners' average tonnage undercut for the year was 5,053 tons, and the average days worked during the year were 173 days, which is an average of 29.2 tons for each working day. The price for cutting coal varies in the different districts. In the Hocking district it is 9c per ton for wide and 12½c for narrow work. In Eastern Ohio, No. 8 vein, the price for wide work is 10½c, and 19½c for narrow work on the basis of three tons for a yard of 8 ft. wide places.

In the Guernsey district the price paid for cutting wide work is 9½c per ton, and for narrow work, 12½c.

The price paid in other fields is in some instances much higher than in the above-named fields, and in computing all these figures and allowing that one-third of the total tonnage is paid for at narrow coal price, we find that the yearly earnings of a machine runner average about \$585.00; for actual days worked, \$3.56 per day, or \$1.95 for each working day in the year.

The shooters and loaders worked 169 days, and their yearly tonnage is 686, which would make an average of 4.06 tons for each working day. The price per ton paid for loading also varies in the different fields, but not so much as the cutters' price; however, in making an estimate and figuring from the same basis as on the cutting question, the average earnings are about \$370.00; for each actual day worked, \$2.19, or \$1.23 for each working day in the year.

The above figures must be considered the gross earnings, and out of these, the expenses necessary to coal mining, such as powder, oil, repairing of tools and other incidentals, are to be deducted. Any one can readily realize that the earnings of the miner are such that they will not enable him to properly maintain himself and family according to the American standard of living, and every one must admit that there is room for improvement in the mining industry, especially from a financial standpoint, so far as the miners' wages are concerned.

MINING MACHINERY.

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MACHINERY IN COAL MINES.

The substitution of mechanical devices to replace manual labor in all industries has been the study of men of brains and intellect for many years. When we observe the continuous growth of the coal mining industry for the last 10 or 15 years, we find that this is especially due to the introduction of machinery for the purpose of drilling, undercutting and hauling coal. No doubt the nature of the roof and the coal conditions have a bearing upon the introduction of machinery, and judging from the increase of machine coal year by year it seems that the majority of the Ohio veins of coal have been especially adapted for the use of the machine.

A great evolution has taken place in the mines. Years ago, the miner with his brawn and muscle did the undercutting and then the drilling, shooting and loading. All the hauling of coal was by the old-fashioned way,—mule power. But what do we find to-day? We find the chain or air undercutting machine introduced, and its efficiency for that purpose cannot be questioned. Drilling in some places is also done either by electricity or by compressed air power.

The motor has been adopted for the haulage of coal, and to-day we find long lines of cars coming out of the mine drawn by an electric motor.

In mines where fire damp generates in dangerously large quantities it is unsafe to use electric power in the interior workings of the mine unless extra precaution is taken to supply large volumes of air in order to quickly dilute the gases, consequently compressed air is used instead of electric power. In the mines of this state the motive power is generally electricity.

The greatest advance in underground mining machinery, and which has resulted in the cheapening of coal, is the undercutting by the mining machines, and so perfect is this labor saving device made and utilized that in the year 1905, 74% of the total production was mined by the machine. In 1904, the number of these mining machines in use in the state was 975, while in 1905 this number increased to 1,146, showing a gain of 171 machines. Out of these, 1,001 are operated by electricity and 145 by compressed air.

Belmont County leads, having 186 machines installed in the mines, the greatest number in operation, with Jefferson County a close second, having 182. Athens County has 161, Perry 158, and Guernsey 93 mining machines.

These figures demonstrate that the capacity of a machine in cutting coal is not as great in one vein as in others. The Hocking and Guernsey fields are considered especially adapted for the machine, as the greatest

tonnage produced for each machine per day or per year. The Eastern Ohio field is also coming well to the front, and while a machine is not able to undercut as many tons as in the above-named fields, yet its success is assured, taking into consideration the increased tonnage of machine coal this field has produced in the last few years.

Two counties, Portage and Summit, are added to the list as using mining machines, making a total of 21 counties.

The number of motors for haulage purposes has also increased from 186 in the year 1904 to 214 in 1905, which is a gain of 28 over the former year, and they are now installed in 17 of the coal producing counties. Jefferson County again leads any other in having the largest number, 41 motors, installed in the mines, with Athens a close second, the number being 40. Belmont has 39, Perry 28, and Guernsey 22.

The following tables will show the number of machines and motors in use in each county and the total number of both operated in the state:

TABLE SHOWING THE NUMBER AND MAKE OF MINING MACHINES
IN USE IN TWENTY-ONE COAL PRODUCING COUNTIES, AND
POWER BY WHICH THEY ARE OPERATED.

Counties.	Electric.							Total.	Compressed Air.					Total.
	Jeffrey.	Morgan-Gardner.	Goodman.	Independent Link Belt.	General Electric.	Harrison.	Ingersoll-Serg't.		Jeffrey.	Harrison.	Ingersoll-Serg't.	Whitcomb.	Sullivan.	
Athens	34	86	29	9				151	5					5
Belmont	77	27	36					140	1	41	1	2		45
Carroll	10	13	1					24						
Columbiana	8	8	4					20			8			8
Coshocton	13							13			10		2	12
Guernsey	30	42	8	5	7		1	93						
Harrison	14	4						18						
Hocking	28	14						42						
Jackson	67	14	1					82						
Jefferson	88	22	66					176	4	2				6
Lawrence	6							6						
Meigs	12	10						12						
Morgan	9	3						12						
Muskingum		7						7						
Noble	3	6	3				1	13						5
Perry	88	55	5					148	5					5
Portage											5			5
Stark	7		3					10		17				17
Summit			3					3						
Tuscarawas	9	3	5					17	23	19				42
Vinton	8	5	1					14						
Total	501	319	165	7	7		1	1,001	6	73	62	2	2	145

NOTE—

Total machines of all kinds used in 1905..... 1,146

Total machines of all kinds used in 1904..... 975

Showing gain of 171 machines

TABLE SHOWING THE NUMBER AND MAKE OF HAULAGE MOTORS
IN USE IN THE VARIOUS COUNTIES OF THE STATE IN 1905.

Counties.	Jeffrey.	Morgan-Gardner.	Independent Link Belt.	Goodman.	General Electric.	Westinghouse.	Baldwin Locomotive.	N. R. Porter.	Total.
Athens	7	14	1	15	2			1	40
Belmont	17	7		10		4	1		39
Carroll		1		1					2
Columbiana		1	1	1					3
Coshocton	3								3
Guernsey	9	6		7					22
Harrison	2						1		3
Hocking	4			4					8
Jackson	5								5
Jefferson	15	10		6		4	6		41
Meigs		1		1					2
Morgan	1	1							2
Noble	1	2							3
Perry	16	9	3						28
Stark		1							1
Tuscarawas	6	4							10
Vinton	1	1							2
Total	87	58	5	45	2	8	8	1	214

NOTE.

Total number motors in use in 1905.....	214
Total number motors in use in 1904.....	186
Gain over 1904.....	28

MINES IN WHICH MINING MACHINES HAVE BEEN INSTALLED DURING THE YEAR 1905.

The number of mining machines installed in the mines of the state during the year increased 171, making a total of 1,146 in operation at the close of the year 1905. Of this number, 1,001 were of the electric, and 145 of the compressed air type. This certainly shows that Ohio coal companies are alive to their interests and are taking advantage of the mechanical devices which have a tendency to reduce the operating expenses and to increase the output of coal. This is another evidence that the pick miner will become very near obsolete in his profession in the near future.

Belmont county leads all others by having 42 new machines installed, 38 of which are electric and 4 of the compressed air type. Jefferson County shows an increase of 31 electric, but a loss of 1 compressed air machine. Tuscarawas records a gain of 37 compressed air and 3 electric machines. Athens increases 13 in the number of electric machines, and Harrison County by 14.

The greatest gain in compressed air machines is found in Tuscarawas County, where the nature of the coal is such that the Puncher machine is better adapted to undercut the coal than the electric chain machine.

Out of the total of 1,146 machines in operation, 501 are of the Jeffrey Electric type, an increase of 51 over the year 1904. The number of the Morgan-Gardner make is 319, or an increase of 29 over the preceding year. The Goodman machine increased from 128 to 165, showing a net gain of 37. The various other types in operation number 16.

Of the compressed air machines in use, 73 are of the Harrison make, a gain of 29 over the preceding year. Sixty-two are of the Ingersoll-Sergeant type, showing a gain of 35. Ten are of various other makes.

The number of motors installed in the mines of Ohio last year was 28, making a total of 214 in operation at the end of the year. Jefferson County leads in having the largest number of motors, 41. Athens, second with 40, and Belmont a close third with 39. Perry has 28, and Guernsey 22.

Of the total number of motors in operation, the Jeffrey type again leads the list, having 87, an increase of 15 over the preceding year of 1904. Fifty-eight are of the Morgan-Gardner make, showing a decrease of 6. There are 45 of the Goodman, an increase of 4. Of the remainder, 5 are Independent Link Belt, 2 General Electric, 8 Westinghouse, 8 Baldwin Locomotives and 1 Locomotive of the Porter make.

The following mines have installed mining machines during the year 1905:

Belmont — Black Diamond; Columbia; Lorena; Delora No. 1; Provident and Meister Bros.

Columbiana County — Farquhar.

Coshocton County — Conesville No. 4.

Guernsey County — Little Trail Run; Nicholson No. 1; Nicholson No. 2, and White Ash.

Harrison County — Adena; Roby No. 1 and Roby No. 2.

Hocking County — Equator No. 8.

Jackson County — Peerless.

Jefferson County — Rush Run No. 2 and Plum Run.

Meigs County — Peacock and Kings.

Muskingum County — Walnut Hill.

Perry County — Bear Run No. 1; Jones No. 15; XX No. 1, and Chapman Mining Co.

Summit County — Beechwood.

Tuscarawas County — West Goshen; Reeves No. 2; Central Valley No. 2; Goshen Shaft, and Reeves No. 1.

Vinton County — Elk Fork and Oretton (Outhwaite).

The following mines reported the use of mining machines in previous years, but failed to report any machine coal, or any machines in operation, during the year 1905. This is no doubt due to the fact that machines had been previously installed without success, or that the mine is practically exhausted and the machines are not an economical advantage.

Carroll County — Somers No. 3.

Columbiana County — Pleasant Valley; Card & Prosser No. 4; McNab and Peerless.

Guernsey County — Union No. 1.

Jackson County — Milton No. 3; Fluhart No. 2; Victor.

Jefferson County — Ruthven.

Perry County — Gibbs No. 53 and Keystone No. 3.

Tuscarawas County — Somerdale No. 2 and Beaver Dam No. 1.

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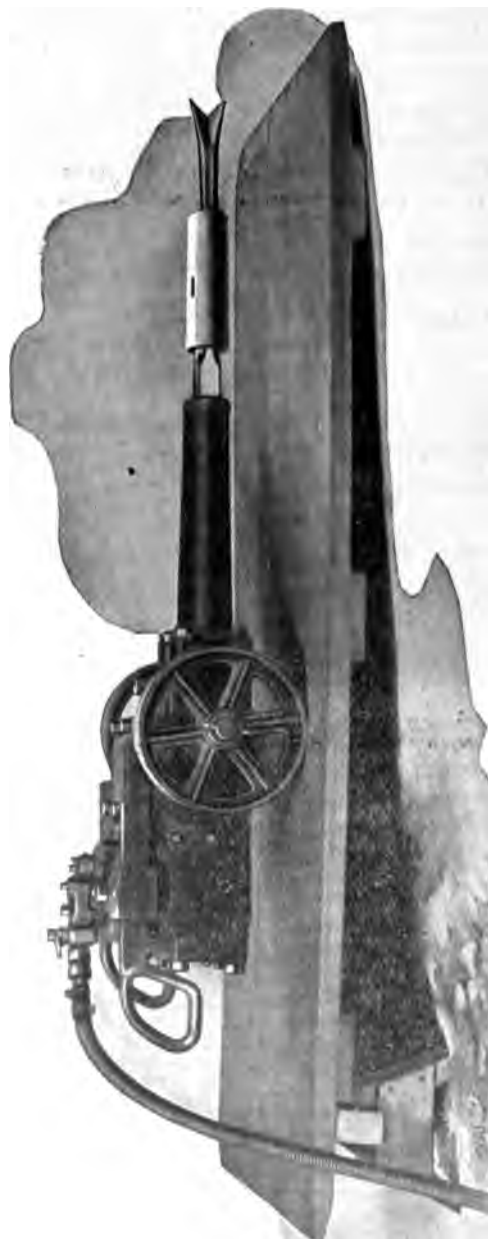
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TABLE SHOWING MANUFACTURER, NUMBER IN USE AND LOCATION OF MINING MACHINES, ETC.—Continued.

Names of Mines.	Electric Mine Machines.					Compressed Air Mine Machines.										Motors.											
	Jeffrey.	Morgan-Gardner.	Goodman.	Independent Link Belt.	Total Electric.	Jeffrey.	Morgan-Gardner.	Goodman.	Independent Link Belt.	General Electric.	Harrison.	Ingersoll-Sergeant.	Sullivan.	Whitcomb.	Total Compressed Air.	Jeffrey.	Morgan-Gardner.	Independent Link Belt.	Goodman.	General Electric.	Perry Electric.	Baldwin Locomotive.	Westinghouse.	Porter.	Baldwin-Westinghouse.	Total Motors.	
<i>Morgan County.</i>																											
Tropic	1	1			9											1										1	
Rose	1	2			3											1										1	
Total	9	3			12											1	1									2	
<i>Muskingum County.</i>																											
Walnut Hill		4			4																						
Musk. Coal & Ry. (Ables Nos. 2-10) ..		3			3																						
Total	7				7																						
<i>Noble County.</i>																											
Laura	3		3		7											1										1	
Bell Valley		6			6																					2	
Total	3	6	3		13																					3	

Summit County.									
Beechwood—Massillon	3	—	—	—	—	—	—	—	—
Total	3	—	—	—	—	—	—	—	—
Tuscarawas County.									
West Goshen	2	—	—	—	—	—	—	—	—
Goshen Shaft	—	—	—	—	—	—	—	—	—
Wainwright No. 6	3	—	—	—	—	—	—	—	—
Central Valley No. 2	—	—	—	—	—	—	—	—	—
Mullins Goshen	5	—	—	—	—	—	—	—	—
Novelty	4	—	—	—	—	—	—	—	—
Reeves No. 1	—	—	—	—	—	—	—	—	—
Reeves No. 2	—	—	—	—	—	—	—	—	—
Somers No. 1	7	—	—	—	—	—	—	—	—
Total	9	3	5	—	—	—	—	—	—
Tinton County.									
Alma Cement	2	—	—	—	—	—	—	—	—
Trace	2	—	—	—	—	—	—	—	—
Cornelia	2	—	—	—	—	—	—	—	—
Elk Fork	4	—	—	—	—	—	—	—	—
Raccoon (Minerton)	1	—	—	—	—	—	—	—	—
Oreton (Outhwaite)	1	—	—	—	—	—	—	—	—
Total	8	5	1	—	—	—	—	—	—
Grand Total	501	319	165	7	7	1	1	1	1



NO. 1. COAL PICK MACHINE.

Sullivan compressed air pick machine, built in five styles for low or high coal, light or heavy air pressure and for undercutting from four to five and one-half feet in depth. The weight of machines varies from 600 to 850 pounds. Sullivan Machinery Co., Chicago, Ill.



NO. 2, ELECTRIC CHAIN MACHINE.

Sullivan electric chain mining machine, class CE. View at end of sumping or rib cut, detaching rear half of frame before cutting across the face.



NO. 3.

Sullivan electric chain mining machine in Detroit Mine of Wills Creek Coal Co., Cambridge, Ohio. This view shows machine cutting across the face at one operation, without moving props (which are only six feet from face) or changing jacks.



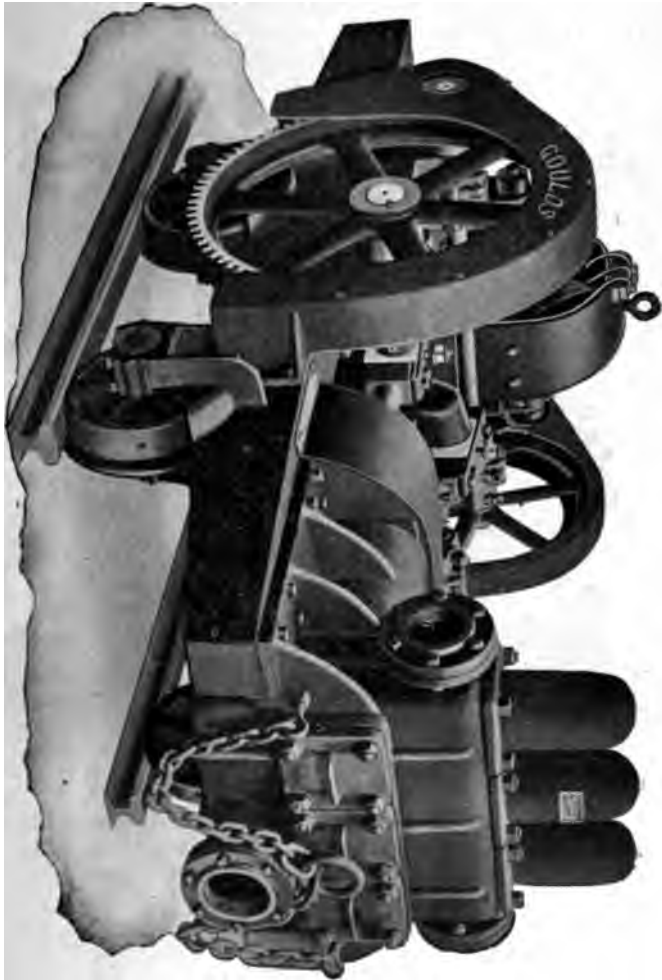
NO. 4, SULLIVAN CHAIN MINING MACHINE.

This view shows machine backing out from coal at left rib after cutting across the face or breast. Rear half of frame is being re-attached, ready for cutting next room.

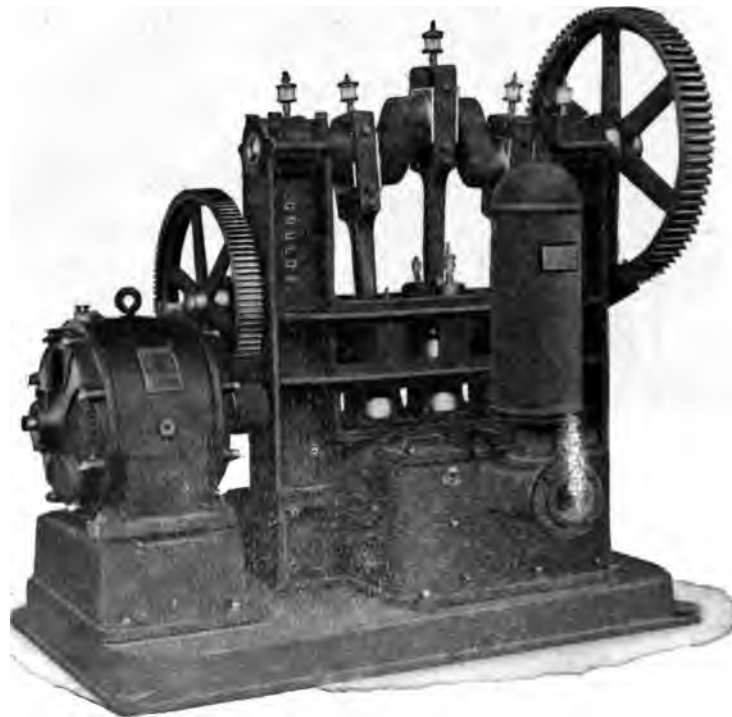


NO. 5

Sullivan electric chain mining machine leaving room on self-propelling truck. Machine is handled entirely by its own power in loading, unloading and moving from place to place, whether on or off the truck. Sullivan Machinery Co., Chicago, Ill., manufacturers. **Ma-**



The above is a Horizontal Triplex Electric Mine Pump, made to fit track so it can be run any place in mine. Made by the Goulds Manufacturing Co., Seneca Falls, N. Y., for and sold by Cass Har-kins, Columbus, Ohio.



The above is a Vertical Triplex Electric Mine Pump, made by the Goulds Manufacturing Co., Seneca Falls, N. Y., for, and sold by, Cass Harkins, Columbus, Ohio.

**MINES AND MODE OF
VENTILATION.**

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TABLE SHOWING NUMBER OF MINES OPENED, SUSPENDED AND ABANDONED DURING THE YEAR 1905.

Counties.	Opened.	Suspended.	Abandoned.
Athens	3	5	.....
Belmont	2	3	3
Columbiana	4	4	5
Coshocton	1	2	1
Gallia .....	.....	2	.....
Guernsey	2	2	1
Harrison .....	.....	1	.....
Hocking	1	2	1
Holmes	2	.....	.....
Jackson	5	8	4
Jefferson	4	1	1
Medina .....	.....	.....	5
Meigs	2	2	.....
Muskingum .....	.....	3	.....
Perry	1	5	.....
Stark	6	4	8
Scioto .....	.....	1	.....
Summit	2	.....	1
Tuscarawas	3	3	3
Vinton	4	1	.....
Wayne .....	.....	1	.....
Totals	42	50	33

NOTE.

A loss of fifty-nine mines opened up, seven suspending operation, and four in those worked out and abandoned is shown in comparing the year 1905 with 1904.

Stark County reported six new mines, Jackson five and Columbiana, Jefferson and Vinton each four.

Five mines in Athens County suspended operation, eight in Jackson and five in Perry.

Eight mines were abandoned in Stark, five in Columbiana and Medina and four in Jackson County.

DETAILED LIST OF NEW MINES OPENED UP, SUSPENDED AND
ABANDONED DURING THE YEAR 1905.

ATHENS COUNTY.

New Mines.	Suspended.	Abandoned.
New Pittsburg No. 9.....	Black Diamond	
No. 202	Big Run	
Shingler	Utley	
.....	No. 252	
.....	No. 203	

BELMONT COUNTY.

New Mines.	Suspended.	Abandoned.
Lorena	Wegee	Cochran No. 1.
Florence	Delora No. 2.....	Echo.
.....	Kings Run	Laughlin No. 1.

COLUMBIANA COUNTY.

New Mines.	Suspended.	Abandoned.
New Salisbury	Somers No. 3.....	Cherry Valley.
Prosser No. 5.....	Cedar Hill	Foster.
Salisbury Clay	Salem	Leetonia.
Salt Run	Peerless	Pleasant Valley No. 7.
.....	.....	Lisbon.

COSHOCTON COUNTY.

New Mines.	Suspended.	Abandoned.
Burnett	Drake No. 2.....	Hall.
.....	Wade No. 2.....	

GALLIA COUNTY.

New Mines.	Suspended.	Abandoned.
.....	Carl No. 1 and No. 2....	

**DETAILED LIST OF NEW MINES OPENED UP, SUSPENDED AND
ABANDONED DURING THE YEAR 1905 — Continued.**

GUERNSEY COUNTY.

New Mines.	Suspended.	Abandoned.
Red Oak	Hartford	C. C. C.
White Ash	Union	

HARRISON COUNTY.

New Mines.	Suspended.	Abandoned.
.....	Clover Leaf	

HOCKING COUNTY.

New Mines.	Suspended.	Abandoned.
Equator No. 8.	Peatty Bros.	New Pittsburgh No. 4.
.....	Big Four No. 15.	

HOLMES COUNTY.

New Mines.	Suspended.	Abandoned.
Pilderback No. 2.	
Dorald	

JACKSON COUNTY.

New Mines.	Suspended.	Abandoned.
Superior No. 11.	Ridgeland	Milton No. 2.
Daisy	Jones Slope No. 3.	Hibbals.
Holberg	Cornelia No. 1.	Buckeye No. 2.
Elkhorn	Cornelia No. 2.	Jones Slope.
C. K.	Southern Ohio	
.....	Woodrow	
.....	Washington	
.....	Ohio	

DETAILED LIST OF NEW MINES OPENED UP, SUSPENDED AND
ABANDONED DURING THE YEAR 1905 — Continued.

JEFFERSON COUNTY.

New Mines.	Suspended.	Abandoned.
Dunglen	Taylor	Rolling Mill No. 2.
Stratton Clay .....	.....
Wabash .....	.....
Lacey Clay No. 2.....	.....

MEDINA COUNTY.

New Mines.	Suspended.	Abandoned.
.....	Card No. 5.
.....	Wagoner.
.....	Whelan No. 2.
.....	Easter.
.....	Excelsior.

MEIGS COUNTY.

New Mines.	Suspended.	Abandoned.
Steavens No. 2.....	Russell & Bear.....	
Kauff	Noble-Summit	

MUSKINGUM COUNTY.

New Mines.	Suspended.	Abandoned.
.....	Pan-American	
.....	Oak Knob	
.....	Garrett	

PERRY COUNTY.

New Mines.	Suspended.	Abandoned.
Indian Run No. 2.....	No. 20	
No. 2	No. 253	
.....	Keystone No. 4.....	
.....	Lily	
.....	No. 322	

DETAILED LIST OF NEW MINES OPENED, UP, SUSPENDED AND
ABANDONED DURING THE YEAR 1905 — Continued.

STARK COUNTY.

New Mines.	Suspended.	Abandoned.
No. 19	Geise No. 13.	No. 16.
Harring Wilson	No. 18	Central No. 7.
Whittacre No. 3.	Elm Run No. 5.	Minglewood.
Whittacre No. 4.	Pleasant Valley	Canton Coal Min.
Edgefield .....	.....	Sherwood.
Krumlauf .....	.....	Eureka.
.....	.....	Warwick No. 2.
.....	.....	Krause No. 6.

SCIOTO COUNTY.

New Mines.	Suspended.	Abandoned.
.....	Eifort	

SUMMIT COUNTY.

New Mines.	Suspended.	Abandoned.
Cottage Grove	Franklin.
Monkey Run	

TUSCARAWAS COUNTY.

New Mines.	Suspended.	Abandoned.
North New Castle	Carbon Hill	Central Valley.
Croxton	Laughlin	Aken.
Goshen Valley	Acme	Thompson Run E.

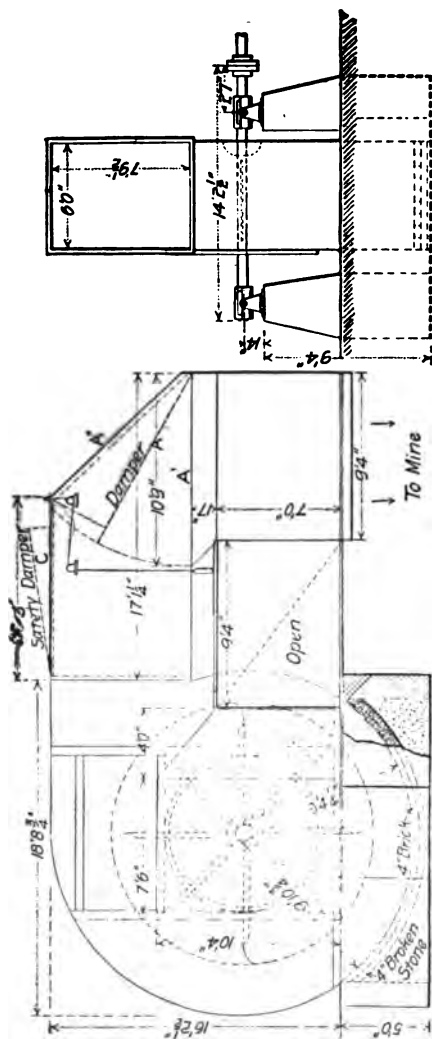
VINTON COUNTY.

New Mines.	Suspended.	Abandoned.
Outhwaite	Quinshill	
Mohr & Minton .....	.....
Lomax .....	.....
Raccoon Valley .....	.....

DETAILED LIST OF NEW MINES OPENED UP, SUSPENDED AND
ABANDONED DURING THE YEAR 1905 — Concluded.

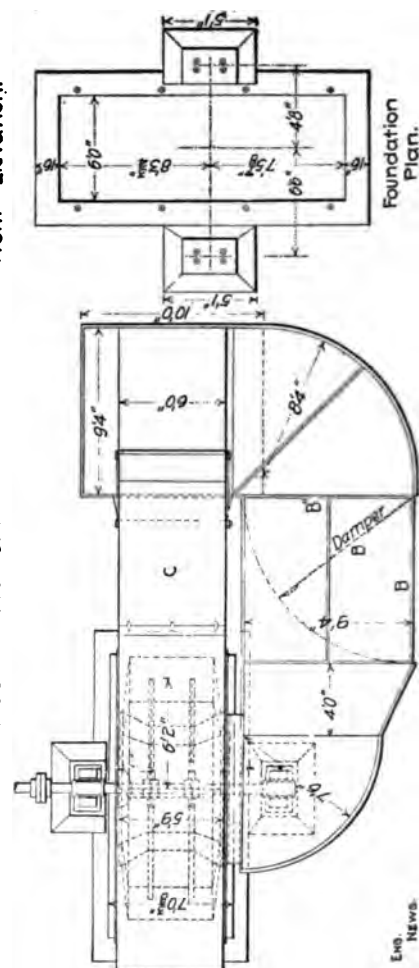
WAYNE COUNTY.

New Mines.	Suspended.	Abandoned.
.....	Doylestown	



Side Elevation.

Front Elevation.



Top Plan.

Foundation Plan.

MINE VENTILATING FAN.

This fan is made by the Buffalo Forge Co., Buffalo, N. Y., and is connected direct to an Atlas Plain Slide Valve Engine. Both the fan and engine are made for, and sold by, Case Harkins, Columbus, Ohio.

Eng.
News.

TABLE SHOWING THE NUMBER OF LARGE MINES EMPLOYING TEN OR MORE MEN, AND THE NUMBER OF SMALL MINES WITH LESS THAN TEN MEN, IN OPERATION DURING THE YEAR 1905; ALSO THE NUMBER OF LARGE MINES IDLE DURING THE YEAR.

Counties.	Large Mines, More Than Ten, in Operation.	Large Mines Idle in 1905.	Total No. of Large Mines.	Small Mines, Less Than Ten Men, in Operation.	Total Mines in Operation.
Athens	43	5	48	8	51
Belmont	47	3	50	22	69
Carroll	10	.....	10	12	22
Columbiana	16	4	20	19	35
Coshocton	9	2	11	9	18
Gallia	2	2	4	3	5
Guernsey	23	2	25	11	34
Harrison	4	1	5	29	33
Hocking	14	2	16	3	17
Holmes	2	.....	2	6	8
Jackson	60	8	68	15	75
Jefferson	38	1	39	13	51
Lawrence	15	.....	15	15	30
Mahoning	5	.....	5	16	21
Medina	5	.....	5	4	9
Meigs	11	2	13	16	27
Morgan	2	.....	2	.....	2
Muskingum	11	3	14	60	71
Noble	2	.....	2	30	32
Perry	50	5	55	30	80
Portage	3	.....	3	.....	3
Scioto	1	1	2	3	4
Stark	30	4	34	39	69
Summit	5	.....	5	6	11
Trumbull	1	.....	1	3	4
Tuscarawas	40	3	43	34	74
Vinton	9	1	10	6	15
Washington .....	.....	.....	.....	1	1
Wayne	6	1	7	4	10
Totals	464	50	510	417	881

NOTE.

We classify all mines with more than one opening, and having but one tippie, as one mine.

TABLE SHOWING THE NUMBER OF MINES USING THE VARIOUS METHODS OF VENTILATION, AND THE THREE KINDS OF OPENINGS.

Counties.	Drift.	Slope.	Shaft.	Total.	Fan.	Furnace.	Fire Basket.	Exhaust Steam.	Natural.	Total.
Athens	26	11	14	51	36	7	1	.....	7	51
Belmont	54	12	3	69	35	23	3	.....	8	69
Carroll	16	3	3	22	6	8	2	.....	6	22
Columbiana	19	12	4	35	14	2	3	.....	16	35
Coshocton	17	1	.....	18	.....	11	1	.....	6	18
Gallia	4	1	.....	5	.....	2	.....	.....	3	5
Guernsey	12	8	14	34	20	6	.....	.....	8	34
Harrison	27	4	2	33	3	1	4	.....	25	33
Hocking	16	1	.....	17	10	2	1	.....	4	17
Holmes	7	1	.....	8	.....	4	.....	.....	4	8
Jackson	49	8	18	75	36	25	6	.....	8	75
Jefferson	43	4	4	51	27	11	.....	.....	13	51
Lawrence	30	.....	.....	30	1	14	.....	.....	15	30
Mahoning	7	5	9	21	4	5	.....	4	8	21
Medina	1	6	2	9	3	4	1	1	.....	9
Meigs	27	.....	.....	27	5	9	.....	.....	13	27
Morgan	2	.....	.....	2	2	.....	.....	.....	.....	2
Muskingum	63	8	.....	71	1	22	4	.....	44	71
Noble	26	4	2	32	2	1	2	.....	27	32
Perry	62	9	9	80	30	14	3	.....	33	80
Portage .....	.....	.....	3	3	3	.....	.....	.....	.....	3
Scioto	3	1	.....	4	.....	1	.....	.....	3	4
Stark	32	11	26	69	22	20	2	4	21	69
Summit	3	4	4	11	3	.....	.....	3	5	11
Trumbull	2	1	1	4	.....	.....	.....	.....	4	4
Tuscarawas	61	11	2	74	15	41	2	.....	16	74
Vinton	13	1	1	15	6	4	.....	.....	5	15
Washington	1	.....	.....	1	.....	1	.....	.....	.....	1
Wayne	3	3	4	10	5	1	1	1	2	10
Totals	626	130	125	881	289	239	36	13	304	881

TABLE SHOWING THE NUMBER OF MINES EMPLOYING THE VARIOUS METHODS OF VENTILATION, AND THE THREE KINDS OF OPENINGS FROM 1892 TO 1905, INCLUSIVE.

Year.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
Drifts	303	676	657	749	821	800	921	789	696	625	589	591	638	626
Shafts	91	121	149	150	149	153	143	145	122	133	140	142	153	130
Slopes	40	61	61	68	66	85	145	133	140	149	142	140	142	125
Small mines, kind of opening unknown	458	151	296	220	167	190	46	65	114	99	96	81	85	.....
Total	892	1,009	1,163	1,187	1,203	1,228	1,255	1,132	1,072	1,006	967	954	1,018	881
Fans	137	141	139	134	134	149	149	147	171	182	219	259	282	289
Furnaces	253	323	264	278	281	280	317	274	264	253	222	244	254	239
Fire baskets	11	23	32	36	38	51	45	41	48	40	57	44	50	36
Steam jets and ex. from pumps	30	39	43	48	52	49	47	34	33	44	45	32	34	13
Natural	205	316	378	452	528	516	636	523	453	389	336	302	320	304
Small mines, mode of ventilation not known	266	167	309	242	179	200	73	107	103	98	88	73	78	.....
Total	892	1,009	1,165	1,190	1,212	1,245	1,267	1,126	1,072	1,006	967	954	1,018	881

NOTE.—This Department will henceforth classify all mines with more than one opening, and where all coal is dumped over one tipple, as one mine only.

MINES GENERATING FIRE DAMP.

The number of mines generating light carbureted hydrogen gas (fire damp), number eighty-five (85) for the year 1905, a loss of four. This is accounted for from the fact that four mines were worked out and abandoned as follows: McNab and Cherry Valley mines in Columbiana County; Central No. 7 and Oakwood No. 16 mines in Stark County.

One fatal accident occurred during the year as a result of the presence of fire damp, or rather an explosion of fire damp, which took place at the San Toy mine, owned and operated by the New England Coal Co., Columbus, Ohio. Wm. Donnelly, thirty-six years of age, was employed as Fire Boss and went into the mine prior to the night turn going to work, and failing to return, the engineer and others became alarmed and a searching party was organized about five o'clock in the evening and after a short examination it was learned that there had been an explosion of gas on the first pair of north entries on the east side of the mine and doors and brattices had been blown down. It was five o'clock the next morning before the body was discovered, and when found was in a badly burned condition. It was located in the intake of the north entries. The statement of the engineer was that he stopped the fan fifteen minutes for repairs with the consent of the fire boss, prior to the latter entering the mine for the purpose of examining the working places previous to the night men going to work, and also start the pump. About an hour later the engineer's attention was attracted by an unusual signal from the bottom; thinking that the fire boss had signalled for steam it was turned on accordingly, and some time later his attention was called to a strange and unusual odor coming from the main upcast shaft. Becoming alarmed he went down the shaft and discovered that there had been an explosion.

Searching parties were formed and the body was recovered as already stated in the blind north entry seventy-five (75) feet north of the first east entry. His cap was found ten feet west of the body and his lamp and tape line thirty-three feet north of where the body was found.

Owing to the mass of conflicting testimony, it was difficult to arrive at the direct cause of this unfortunate accident, and the exact cause may never be known. However, it was supposed that the fire boss entered the mine with a naked light and came in contact with a body of gas which had accumulated during the time the fan suspended operation, or by the breaking down of a brattice behind the point where the gas was ignited seems evident. At least this is the only logical conclusion at which one can arrive.

After the gas became ignited, it came in contact with several kegs of powder on the first and second west entries, thereby adding to the

force of the explosion. After the doors, brattices and stoppings were repaired, an examination of the mine was made, and a number of minor changes were suggested.

This one fatal accident due to fire damp was the only one reported during the year.

DETAILED LIST OF MINES WHICH GENERATE LIGHT CARBURETED HYDROGEN GAS.

ATHENS COUNTY.

No. 281	No. 255	No. 10.
No. 266	No. 254	No. 311.
No. 209	No. 210	No. 211.
Luhrig No. 1.....	Johnson No. 3.....	No. 23.
Luhrig No. 2.....	No. 24	New Pittsburgh No. 9.
Luhrig No. 3.....	No. 256	No. 267.
No. 201	No. 31	No. 252.
No. 275		

BELMONT COUNTY.

Captina	Delora No. 1.....	Wegee.
Black Oak	Delora No. 2.....	Provident.

CARROLL COUNTY.

Heatherington Big Vein....	
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COLUMBIANA COUNTY.

New Shaft	Slope No. 1.....	Pine Hill.
Big Walnut	Slope No. 2.....	Cedar Hill.
Salem (Suspended)	Farquhar	

GUERNSEY COUNTY.

Trail Run	Hartford	Imperial.
Blue Bell	Walhounding	Detroit.
Kings	Black Top	Cleveland No. 1.
Forsythe	Old Orchard	Little Kate.
Ideal	Murray Hill	Klondyke.

HOCKING COUNTY.

New Pittsburgh No. 7....		Lost Run.
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JACKSON COUNTY.

Domestic	Superior No. 9.....	Ada New.
	Fluhart No. 3.....	

JEFFERSON COUNTY.

West Pittsburgh	Amsterdam	Brilliant.
Zerbe	LaBelle	High Shaft.
Rolling Mill No. 2.....		

MAHONING COUNTY.

Lowellville	
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MEIGS COUNTY.

Syracuse Slope	
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NOBLE COUNTY.

Noble		Laura.
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DETAILED LIST OF MINES WHICH GENERATE LIGHT CARBURETED
HYDROGEN GAS — Concluded.

PORTAGE COUNTY.

Hutson No. 4..... Mullen Shaft.

PERRY COUNTY.

San Toy No. 1..... No. 253 San Toy No. 2.

STARK COUNTY.

Minglewood No. 2..... Fox No. 12..... New Greenville No. 3.
Geise No. 13..... Stanwood No. 8..... Warwick No. 5.
Pocock No. 3..... Elm Run No. 6.....

TUSCARAWAS COUNTY.

Goshen Shaft Beaver Dam No. 1..... Beaver Dam No. 2.

ACCIDENTS.

(125)

TABLE SHOWING THE NUMBER OF FATAL, SERIOUS AND MINOR ACCIDENTS, AND THE NUMBER OF EACH CLASSIFICATION, THAT OCCURRED IN EACH COUNTY FROM JANUARY 1, 1904, TO DECEMBER 31, 1904. INCLUSIVE.

Counties.	Fatal.	Serious.	Minor.	Total.
Athens	8	43	17	68
Belmont	19	38	7	64
Carroll	1	4	.....	5
Columbiana	4	5	2	11
Coshocton	1	3	2	6
Gallia	2	1	.....	3
Guernsey	19	61	17	97
Harrison	2	10	3	15
Hocking	3	14	29	46
Holmes .....	.....	.....	.....	.....
Jackson	10	26	9	45
Jefferson	23	29	10	62
Lawrence	1	5	2	8
Mahoning .....	.....	1	1	2
Medina	1	.....	.....	1
Meigs .....	.....	1	1	2
Morgan .....	.....	1	.....	1
Muskingum .....	.....	5	1	6
Noble	2	1	.....	3
Perry	5	19	3	27
Portage	1	3	4	8
Scioto .....	.....	.....	.....	.....
Stark	4	16	4	24
Summit .....	.....	1	.....	1
Trumbull .....	.....	.....	.....	.....
Tuscarawas	8	22	5	35
Vinton	4	3	4	11
Washington .....	.....	.....	.....	.....
Wayne .....	.....	4	.....	4
Totals	118	316	121	555

TABLE SHOWING THE NUMBER OF FATAL, SERIOUS AND MINOR ACCIDENTS, AND THE NUMBER OF EACH CLASSIFICATION THAT OCCURRED IN EACH COUNTY FROM JANUARY 1, 1905, TO DECEMBER 31, 1905, INCLUSIVE.

Counties.	Fatal.	Serious.	Minor.	Total.
Athens	9	48	17	74
Belmont	22	63	11	96
Carroll	1	3		4
Columbiana	2	8	4	14
Coshocton	2	3	3	8
Gallia	1			1
Guernsey	9	47	30	86
Harrison	2	4	2	8
Hocking	2	19	15	36
Holmes	1			1
Jackson	8	19	6	33
Jefferson	22	51	32	105
Lawrence	3	1	4	8
Mahoning				
Medina	1	4		5
Meigs	1	3	4	8
Morgan		3		3
Monroe				
Muskingum	1	2	4	7
Noble	2	9	2	13
Perry	10	30	14	54
Portage	1	7	3	11
Scioto				
Stark	5	18	8	31
Summit		2	1	3
Trumbull				
Tuscarawas	9	20	9	38
Vinton		3		3
Washington				
Wayne	1	4	2	7
Totals	114	372	171	657

COMPARISON OF ACCIDENTS OF THE CALENDAR YEAR
1905 WITH THE PRECEDING YEAR OF 1904.

We are pleased to record for the year 1905 a decrease of four (4) in the number of fatal accidents reported to this Department, while an increase of over a million and a quarter tons is shown in the amount of coal produced for the same period of time.

An increase is also noticeable in the number of tons of coal mined to the life lost, being for the year 226,628 tons.

In the annual report of this Department for the year 1904 there was published "Rules" governing the employees in the operation of mines as a means of safe-guarding life and limb, which had already been adopted in the Counties of Jefferson, Harrison and Belmont during that year. Meetings have been held in the various coal districts of the State resulting, with a few minor changes, in the same "Rules" being adopted practically for the entire State. We are of the opinion that the decrease in the number of fatal accidents is due largely to their adoption and enforcement. However, the number of fatal accidents, we believe, can still be materially decreased with due diligence on the part of both employer and employe.

The total number of accidents amounted for the year to 657, an increase of 102. Of this number 114 terminated fatally, 372 were of a serious nature and 171 were of minor consequence. Increases are noted in the number of both serious and minor accidents.

Belmont and Jefferson each report 22 fatal accidents. Comparing these figures with the calendar year of '04, we find a gain of three in the former and a loss of one in the latter.

Perry County shows a gain of five, while Guernsey decreased ten in number.

In the number of serious accidents Belmont shows a gain of 25; Jefferson 22 and Perry eleven (11).

Decreases are shown in Guernsey amounting to 14; Jackson 7 and Harrison, six (6). Belmont, Jefferson, Athens, Guernsey and Perry Counties reported the greatest number of accidents.

In the minor accidents Guernsey shows a gain of 13; Jefferson 22 and Perry eleven (11).

There was one life lost to every 388 persons employed and one serious accident for each 119 employed.

There were seventeen (17) fatal accidents which occurred in and around the mines of the State which have not been recorded as mine accidents proper, owing to the circumstances surrounding them, which have been taken up and treated in a special manner in "Accidents not recorded as "Mine Accidents Proper."

TABLE SHOWING A COMPARISON OF THE CASUALTIES OF 1905 AS COMPARED WITH 1904, AND GAIN AND LOSSES OCCURRING IN EACH.

Counties.	From Jan. 1, 1904, to Dec. 31, 1904, inclusive.				From Jan 1, 1905, to Dec. 31, 1905, inclusive.				Gain.	Loss.
	Fatal.	Serious.	Minor.	Total.	Fatal.	Serious.	Minor.	Total.		
Athens	8	43	17	68	9	48	17	74	6	.....
Belmont	19	38	7	64	22	63	11	96	32	.....
Carroll	1	4	.....	5	1	3	.....	4	.....	1
Columbiana	4	5	2	11	2	8	4	14	3	.....
Coshocton	1	3	2	6	2	3	3	8	2	.....
Gallia	2	1	.....	3	1	1	.....	1	.....	2
Guernsey	19	61	17	97	9	47	30	86	.....	11
Harrison	2	10	3	15	2	4	2	8	.....	7
Hocking	3	14	29	46	2	19	15	36	.....	10
Holmes .....	.....	.....	.....	.....	1	.....	.....	1	1	.....
Jackson	10	26	9	45	8	19	6	33	.....	12
Jefferson	23	29	10	62	22	51	32	105	43	.....
Lawrence	1	5	2	8	3	1	4	8	.....	.....
Mahoning .....	.....	1	1	2	.....	.....	.....	.....	.....	2
Medina	1	.....	.....	1	1	4	.....	5	4	.....
Meigs .....	.....	1	1	2	1	3	4	8	6	.....
Morgan .....	.....	1	.....	1	.....	3	.....	3	2	.....
Monroe .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Muskingum .....	.....	5	1	6	1	2	4	7	1	.....
Noble	2	1	.....	3	2	9	2	13	10	.....
Perry	5	19	3	27	10	30	14	54	27	.....
Portage	1	3	4	8	1	7	3	11	3	.....
Scioto .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stark	4	16	4	24	5	18	8	31	7	.....
Summit .....	.....	1	.....	1	.....	2	1	3	2	.....
Trumbull .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tuscarawas	8	22	5	35	9	20	9	38	3	.....
Vinton	4	3	4	11	.....	3	.....	3	.....	8
Washington .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wayne .....	.....	4	.....	4	1	4	2	7	3	.....
Totals	118	316	121	555	114	372	171	657	155	53

TABLE SHOWING COMPARISON OF THE ACCIDENTS OCCURRING
DURING 1904 AND 1905, AS SHOWN ON PAGE 129.

Counties.	Fatal.		Serious.		Minor.	
	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.
Athens	1		5			
Belmont	8		25		4	
Carroll				1		
Columbiana		2	8		2	
Coshocton	1				1	
Gallia		2				
Guernsey		10		14	13	
Harrison				6		1
Hocking		1	5			14
Holmes	1					
Jackson		2		7		3
Jefferson		1	22		22	
Lawrence	2			4	2	
Mahoning				1		1
Medina			4			
Meigs	1		2		3	
Morgan						
Monroe				8	8	
Muskingum	1				2	
Noble			8			
Perry	5		11		11	
Portage			4			1
Scioto						
Stark	1		2		4	
Summit			1		1	
Trumbull					4	
Tuscarawas	1			2		
Vinton		4				4
Washington						
Wayne	1				2	
Totals	18	22	94	38	74	24

CAUSES TO WHICH ACCIDENTS ARE ATTRIBUTABLE.

Although Ohio suffered from no great catastrophies or mine horrors during the year from unforeseen or unusual causes or conditions, the total number of fatal accidents number 114; of this number 71 were due to falls of roof, or 62% of the entire number of fatal accidents. Losses are found in the following causes to which accidents are attributable: falls of coal; mine cars and premature explosions. Fatal accidents due to motors, mining machines and explosions of gas remain practically the same as in the previous year.

Notwithstanding the adoption of "Rules Regulating Employes of Mines," practically throughout the entire State, the number of serious accidents due to mine cars increased surprisingly, being 30% of the entire number of serious accidents reported for the year; the per cent. of serious accidents due to "Falls of Roof," was nearly 16½% more than this, in previous years far exceeding in point of number any other classification. There is no doubt but that this large percentage of accidents due to mine cars is caused by the carelessness and recklessness on part of employes riding in front of loaded trips, and jumping on and off mine cars, which is strictly prohibited in the rules laid down by this Department in this respect.

The attention of Mine Bosses and those in charge of mines is hereby again called in this report to the requirements set forth in the Rules promulgated by this Department in this regard, and they are urgently requested to see that they are strictly enforced in every particular.

Electric wires as a factor which figure in the number of fatalities reported deserve the most careful consideration and investigation into this class of accidents, as six fatalities resulted from this cause during the past year, an increase of 200 per cent. These figures speak for themselves, and demonstrate the fact that some stringent rules will have to be adopted and enforced in certain parts of the State, or this class of accidents is bound to increase owing to the important part played and the extent to which electricity is applied in the modern mine, and in the production of coal. This subject is more fully treated in a special article on page 30 of this report, and should be carefully perused, and immediate steps taken on the part of mine managements to see that every precaution and protection is afforded the men who work in the mines, and to impress upon them the necessity for such, especially where the foreign element is employed, and who are not as familiar with this deadly power as our American miner, the fatal accidents reported from electric wires all being foreigners.

One fatal accident was caused by an explosion of fire damp, a full account of which will be found on page 120 of this report on "Mines Generating Fire Damp."

Premature explosions caused four fatal accidents, one was due to a shot blowing through the rib, one from falling down the shaft and two from miscellaneous causes. Mining machines and motors caused four and three fatal accidents respectively for the year.

TABLE SHOWING THE NUMBER AND CHARACTER OF ACCIDENTS WHICH RESULTED FROM THE PRINCIPAL SOURCES, AS REPORTED FROM EACH COUNTY FROM JAN. 1, 1905, TO JAN. 1, 1906.

Counties.	Fall of Roof.			Fall of Coal.			Mine Cars.			Motor and Mine Machine.			Premature Explosion.			Explosion of Gas.			Miscellaneous.			Total.			Grand Total for Each County.	
	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.		
Athens	3	8	2	1	11	5	3	16	8	1	9	1	1				1			1	6	1	9	48	17	74
Belmont	14	32	8	2	8	1	2	16	1	2										1	7	1	22	63	11	96
Carroll	1	1						2																3		4
Columbiana	1	3	1	2			1	2	2												1	1	2	8	4	14
Coshocton	1	3	3				1																2	3	3	8
Gallia		1																								1
Guernsey	5	17	9	1	1	3	2	17	10		5	2	1				1			1	6	6	9	47	30	86
Harrison	2	1	1					3			1	1											2	4	2	9
Hocking	1	5	4	1	1	2		10	3		1									2	2	5	2	19	15	36
Holmes	1																						1			1
Jackson	6	12	2	1	1	1	1	1			1	1	1								3	2	8	19	6	33
Jefferson	15	28	10	2	1	1		17	11	2	1	1								5	3	9	22	51	32	105
Lawrence	2	1	3						1				1											1	4	8
Mahoning																										
Medina		2					1	1	1											1				4		5
Meigs	1	2	3																				1	3	4	8
Morgan		2																		1				3		3
Muskingum	1	1	3						1	1														2	2	7
Noble	1	2	1	1				5	1		1												2	9	4	13
Perry	4	6	3	1	2	3	2	18	7	2	2	2					1			1	2	1	10	30	14	54
Portage		1	2		2			3	1		1									1	1		1	7	3	11
Scioto																										
Stark	4	9		1	1			5	2		2									1			5	18	8	31

TABLE SHOWING THE NUMBER AND CHARACTER OF ACCIDENTS, ETC. — Concluded.

Counties.	Fall of Roof.			Fall of Coal.			Mine Cars.			Motor and Mine Machine.			Premature Explosion.			Explosion of Gas.			Miscellaneous.			Fatal.			Serious.			Total.			Grand Total for Each County.
	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	
Summit	1	1																													3
Framboill																															38
Tuscarawas	8	6	1	1	1	4						1																			3
Vinton		2																													3
Washington	1	3																													7
Wayne																															7
Total	71	149	57	8	32	18	13	129	55	7	18	6	4	2	3	1	2	...	10	40	32	114	372	171	657						

TABLE SHOWING NUMBER OF FATAL ACCIDENTS, AND CAUSES TO WHICH THEY WERE ATTRIBUTABLE, BY COUNTIES, FROM JANUARY 1, 1905, TO DECEMBER 31, 1905, INCLUSIVE.

Counties.	Falls Roof.	Falls Coal.	Mine Cars.	Mining Machines.	Motors.	Fire Damp.	Premature Explosion	Electric Wire.	Miscellaneous.	Total.	Americans.	Foreigners.
Athens	3	1	3		1				1	9	9	
Belmont	14	2	2	2			1	1		22	22	14
Carroll	1									1	1	
Columbiana	1		1							2	2	
Coshocton	1		1							2	2	
Guernsey	5	1	2				1			9	6	3
Harrison	2									2		2
Hocking	1	1								2	2	
Holmes	1									1	1	
Jackson	6		1				1			8	8	
Jefferson	15			1	1			4	1	22	4	18
Lawrence	2						1			3	3	
Medina			1							1	1	
Meigs	1									1	1	
Muskingum	1									1	1	
Noble		1						1		2	1	1
Perry	4	1	2	1	1	1				10	7	3
Portage									1	1	1	
Stark	4								1	5	4	1
Tuscarawas	8	1								9	6	3
Wayne	1									1	1	
Total	71	8	13	4	3	1	4	6	4	114	69	45

TABLE SHOWING PERCENTAGE OF EACH CAUSE TO WHICH ACCIDENTS ARE ATTRIBUTABLE.

Falls of roof.....	62.3
Falls of coal.....	7.0
Mine cars	11.4
Mining machines	3.5
Motors	2.6
Fire damp	0.9
Premature explosion	3.5
Electric wires	5.3
Miscellaneous	3.5
Totals	100.00

TABLE SHOWING THE NUMBER AND CHARACTER OF THE ACCIDENTS WHICH OCCURRED FROM JANUARY 1, 1905, TO DECEMBER 31, 1905, INCLUSIVE, AND TO WHAT SOURCE THEY WERE ATTRIBUTABLE, WITH THE PERCENTAGE OF EACH CAUSE.

Various Causes of Accidents.	Fatal.	Serious.	Minor.	Total.	Percentage.
Falls of roof	71	149	57	277	42.8
Falls coal	8	32	18	58	8.7
Mine cars	13	129	55	197	30.0
Mining machines	4	14	8	21	3.2
Electric motors	3	4	8	10	1.5
Electric wire	6	1	.....	7	1.1
Premature explosion	4	2	8	9	1.4
Explosion gas	1	2	.....	3	.5
Kicked by mule .....	.....	4	6	10	1.5
Falls of timber .....	.....	5	6	11	1.7
Shot through rib	1	.....	.....	1	.1
Crushed by cage .....	.....	.....	.....	.....	.....
Falling down shaft	1	.....	.....	1	1.0
Explosion of powder .....	.....	8	1	9	1.4
Miscellaneous	2	32	19	43	6.5
Totals	114	372	171	657	100.0

TABLE SHOWING THE NUMBER OF FATAL AND SERIOUS ACCIDENTS, NUMBER TONS OF COAL PRODUCED, NUMBER OF EMPLOYEES, MINING MACHINES, AND MOTORS IN THE YEARS 1904 AND 1905 AS COMPARED WITH THE CALENDAR YEAR, 1903.

Years.	Number Tons Coal Produced for Each Year.	Per Cent. of Increase in Tonnage in 1904 and 1905 as Com- pared with the Year 1903.	Number of Fatal Accidents for Each Year.	Decrease in the Num- ber of Fatal Acci- dents in 1904 and 1905 as Compared with 1903.	Per cent. of Decrease of Fatal Accidents in 1904 and 1905 as Compared with the Year 1903.	Number Tons Coal Mined for Each Fatal Accident.	Number of Serious Accidents for Each Year.	Per Cent. of Increase of Serious Accidents in 1904 and 1905 as Compared with 1903.	Number of Tons Mined for Each Serious Accident.	Decrease in the Num- ber of Tons Mined for Each Serious Accident in 1904 and 1905 as Com- pared with 1903.
1903	24,573,266		124			198,170	309		79,525	
1904	24,583,815	.004%	118	6	5%	208,337	316	2.2%	77,797	1,728
1905	25,834,657	5%	114	10	8%	226,620	372	20%	69,448	10,077

TABLE SHOWING THE NUMBER OF FATAL AND SERIOUS ACCIDENTS, NUMBER TONS OF COAL PRODUCED, NUMBER OF EMPLOYEES, MINING MACHINES, AND MOTORS IN THE YEARS 1904 AND 1905 AS COMPARED WITH THE YEAR 1903.

Years.	Number of Employees.	Per Cent. of Increase of Employees in 1904 and 1905 as Compared with 1903.	Number of Employees for Each Fatal Accident.	Per Cent. of Increase in the Number of Employees for Each Fatal Accident in 1904 and 1905 as Compared with 1903.	Number of Employees for Each Serious Accident.	Per Cent. of Increase in the Number for Each Serious Accident in 1904 and 1905 as Compared with 1903.	Per Cent. of Decrease in the Number for Each Serious Accident in 1904 and 1905 as Compared with 1903.	Number of Mining Machines in Operation.	Increase in the Number of Machines in Operation.	ber of Machines in 1904 and 1905 as Compared with the Year 1903.	Number of Mine Motors in Operation.	Increase in Number of Motors in 1904 and 1905 as Compared with 1903.
1903	41,396	.....	334	.....	134	.....	.....	774	.....	.....	143	.....
1904	45,834	10%	388	16%	145	8%	.....	975	.....	201	186	43
1905	44,193	6%	388	16%	119	11%	.....	1,146	.....	372	214	71

Years.	Falls of Roof.	Falls of Coal.	Injured by Mine Cars.	Premature Explosion.	Explosions of Gas.	Falls Down Shafts.	Crushed Under Cage.	Falls from Tiptle.	Kicked by Mule or Horse.	Injured by Railway Cars.	Falls of Timber.	No Cause Given.	Shot Blowing through Rib.	Injured by Miners Pick.	Heart Failure.	Electric Wires.	Injured by Mining Machines.	Electric Motors.	Miscellaneous.	Explosion of Powder.	Totals.
1888	100	47	46	13	4	1	8	3	2	2	1	5	1	1	1	1	1	1	1	9	238
1889	92	50	48	12	4	1	1	1	4	2	1	3	1	1	1	1	1	1	1	11	230
1890	109	44	59	13	4	2	1	1	5	3	4	3	1	1	1	1	1	1	7	245	
1891	112	26	47	24	6	2	3	1	2	1	2	3	1	1	1	1	1	1	14	242	
1892	126	41	73	21	3	1	1	1	4	3	2	1	1	1	1	1	1	1	11	291	
1893	118	55	88	17	2	2	1	1	6	5	2	1	3	1	1	1	1	1	14	327	
1894	98	39	60	17	5	5	1	1	1	2	3	1	3	1	4	1	1	1	15	257	
1895	108	46	67	23	1	1	3	1	4	2	3	1	3	1	2	1	3	1	8	271	
1896	133	34	74	20	7	1	2	1	9	2	1	1	3	1	1	1	11	1	10	303	
1897	98	48	70	16	5	2	1	1	6	2	1	1	4	1	1	1	7	1	12	277	
1898	156	47	69	8	13	1	3	2	3	3	3	1	4	1	2	1	1	1	14	341	
1899	153	52	100	20	10	3	6	2	6	5	4	1	3	1	3	1	8	1	13	390	
1900	172	62	104	24	6	4	4	1	6	5	4	1	4	1	1	1	9	1	19	424	
1901	191	62	147	14	6	2	7	1	12	6	6	1	4	1	1	1	12	6	50	514	
1902	223	61	148	22	6	1	1	1	13	3	3	1	5	1	1	3	13	6	29	532	
1903	231	56	151	28	14	1	1	1	7	5	3	1	5	1	1	4	15	7	31	574	
1904	244	75	146	31	11	3	4	2	8	2	8	1	2	1	1	3	33	12	32	616	
1905	277	58	197	6	3	1	1	1	10	3	11	1	1	1	1	7	21	10	40	657	
Total	2,741	903	1,694	329	110	33	51	20	108	36	59	11	42	18	14	21	135	35	359	10	6,729

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE LIFE LOST, TO THE SERIOUS INJURY AND TO THE TOTAL NUMBER OF FATAL AND SERIOUS ACCIDENTS FOR EACH YEAR SINCE THE CREATION OF THE DEPARTMENT.

Years.	Number of fatal accidents.	Number of Serious Accidents.	Number of Tons Mined to the Person Killed or Seriously Injured and Number of Tons to to the Total.			Name of Chief Mine Inspector.
			Fatal.	Serious.	Total.	
Fiscal 1874.....	20	80	108,919	4,844	31,419	Andrew Roy.
" 1875.....	23	40	202,607	121,606	77,210	"
" 1876.....	13	70	269,999	50,000	42,168	"
" 1877.....	30	39	175,000	134,615	76,087	"
" 1878.....	20					Jas. D. Poston.
" 1879.....						David Owen.
" 1880.....	22	61	292,624	114,754	84,217	Andrew Roy.
" 1881.....	20		283,621			"
" 1882.....	25		378,000			"
" 1883.....	26		316,516			"
" 1884.....	26	40	226,636	143,433	86,032	Thos. B. Bancroft.
" 1885.....	51	32	244,258	153,258	94,170	"
" 1886.....	43	65	194,308	194,772	78,104	"
" 1887.....	36	75	286,158	137,356	92,808	"
" 1888.....	29	79	376,239	138,113	100,934	Robt. M. Haseltine.
" 1889.....	33	52	330,327	209,757	128,322	"
" 1890.....	42	52	280,687	226,708	125,413	"
" 1891.....	44	66	296,595	197,730	118,636	"
" 1892.....	42	93	347,029	157,129	108,170	"
" 1893.....	32	123	463,378	120,553	95,655	"
" 1894.....	45	116	364,672	102,674	73,976	"
" 1895.....	52	152	263,151	90,025	67,078	"
" 1896.....	41	159	314,942	81,211	64,563	"
" 1897.....	40	142	311,221	87,668	68,400	"
" 1898.....	52	155	270,463	90,736	67,913	"
" 1899.....	59	204	269,643	77,985	60,490	"
" 1900.....	68	207	285,686	93,848	70,643	Elmer G. Biddison.
" 1901.....	72	276	282,240	73,627	58,394	"
" 1902.....	51	298	293,818	80,299	63,138	"
" 1903.....	114	324	215,555	75,843	56,103	"
*November 15-Dec. 31, 1903.....	22	26				
Calendar year 1904.....	118	316	208,337	77,797	58,984	George Harrison.
Calendar year 1905.....	114	372	226,628	69,448	53,158	"

NOTE — Fatal accidents in calendar year 1903 were 124. Serious accidents in calendar year 1903 were 309.

* The 22 fatal and 26 serious accidents are not included in the fiscal year 1903 nor in the calendar year 1904.

	1886.				1887.				1888.			
	Number of Tons Mined for Each Accident.		Number of Miners for Each Life Lost.		Number of Tons Mined for Each Accident.		Number of Miners for Each Life Lost.		Number of Tons Mined for Each Accident.		Number of Miners for Each Life Lost.	
	Fatal.	Non-fatal.			Fatal.	Non-fatal.			Fatal.	Non-fatal.		
Colorado	165,287	66,126	545		149,311	34,456			75,361	27,319		
Great Britain	214,909	333,333	497		162,934	69,017			191,369	80,046		602
Illinois	428,571	350,306			303,002				260,512	157,049		535
Indiana	183,494				227,323	56,830			196,311	49,832		458
Iowa					224,297	52,336			177,401			
Kansas	235,714	61,111			256,172	163,019			154,826	45,874		631
Kentucky									150,383	105,674		210
Maryland	50,654	21,709	206									
Missouri												
Montana												
Nova Scotia					238,691	167,083			888,064	59,204		2,325
Ohio	194,309	129,772	474		286,158	137,356			976,239	138,113		765
Pennsylvania	175,311	53,672	440		169,327	151,900			166,532	56,849		361
Tennessee												
Utah												
Washington												
West Virginia									191,984	63,152		346

THE NUMBER OF TONS MINED AND THE NUMBER OF ACCIDENTS IN THE STATES AND COUNTRIES SINCE 1880. COMPARED WITH OHIO.

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AND COUNTRIES SINCE 1886, AS COMPARED WITH OHIO. — Continued.

	1889.				1890.				1891.			
	Number of Tons Mined for Each Accident.		Number of Miners for Each		Number of Tons Mined for Each Accident.		Number of Miners for Each		Number of Tons Mined for Each Accident.		Number of Miners for Each	
	Fatal	Non-fatal.	Fatal	Life Lost.	Fatal	Non-fatal.	Fatal	Life Lost.	Fatal	Non-fatal.	Fatal	Life Lost.
Colorado	178,227		104,375	530	104,375	31,385	239	227	121,126	27,230	227	
Great Britain	333,745		286,316	716	286,316	51,955	539	549	261,012	42,672	549	
Illinois		69,738	1,239,429		1,239,429	578,400	936		206,776	88,618		507
Indiana			331,709	321	331,709	132,683	824		250,839	78,678		813
Iowa	98,600	52,772	314,506		314,506	125,802	955		184,383			542
Kansas		56,792	233,069	378	233,069	101,943	406		380,084	285,063		437
Kentucky	156,136		243,739	514	243,739	87,049	765		147,223	82,813		418
Missouri	222,347	111,173		1,818								
Montana												
Nova Scotia	219,539	97,571	220,444	646	220,444	94,479	591		681,594	638,996		1,915
Ohio	330,527	209,757	280,687	615	280,687	226,708	456		286,595	65,910		545
Pennsylvania	150,202	56,789	154,257	144	154,257	58,235	181		131,980	64,814		287
Tennessee									109,295	43,718		253
Utah												
Washington												
West Virginia		206,358	206,358		206,358	54,450	937		202,262	104,020		362

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AND COUNTRIES SINCE 1886, AS COMPARED WITH OHIO. -- Continued.

	1892.		1893.		1894.	
	Number of Tons Mined for Each Accident.		Number of Tons Mined for Each Accident.		Number of Tons Mined for Each Accident.	
	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.
	Number of Miners for Each Life Lost.		Number of Miners for Each Life Lost.		Number of Miners for Each Life Lost.	
Alabama	110,880	30,170	310,000	30,371	229,200	470
Colorado	313,372	46,114	146,234	49,503	157,580	534
Great Britain	286,569	166,471	289,124	124,539	198,809	540
Illinois	202,373	87,988	198,132	85,461	138,893	398
Indiana			159,133	47,245	198,809	398
Iowa			221,687	132,090	295,719	803
Kansas			665,549	415,968	443,140	235
Kentucky	378,412	151,304	291,854	35,802	125,438	255
Maryland	510,818	170,273	436,120	50,608	364,672	559
Missouri	150,864	73,592	151,926	68,270	151,521	401
Nova Scotia	161,898	48,569	336,543	68,270	76,688	233
Ohio	347,929	58,634	436,120	68,270	181,739	461
Pennsylvania	177,983	76,166	167,711	24,396	178,974	68
South Dakota			128,633	41,804		
Tennessee	166,619	80,437	418,049	31,812		
Utah	180,886	40,186	134,317	77,510		
Washington	20,738	27,157	151,790			
West Virginia	241,969	81,167				

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AND COUNTRIES SINCE 1886, AS COMPARED WITH OHIO.—Continued.

	1895.		1896.		1897.		Number of Miners for Each Life Lost
	Number of Tons Mined for Each Accident.		Number of Tons Mined for Each Accident.		Number of Tons Mined for Each Accident.		
	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	
Alabama	150,150	217	205,201	363	151,122	...	826
Colorado	145,195	320	49,582	99	...	...	715
Great Britain	...	29,553	190,390	57,146	207,739	...	490
Illinois	236,478	615	256,969	29,444	290,910	38,751	...
Indiana	187,438	843	145,290	61,638	264,225	176,170	...
Iowa	159,792	350	153,282	73,010	172,715	70,865	...
Kansas	319,084	936	205,979	137,069	549,468	109,898	...
Kentucky	400,971	983	530,580	167,551	275,398	122,373	...
Maryland	386,611	557	...	...	...	...	...
Missouri	175,621	...	151,272	121,007	303,674	105,625	...
Nova Scotia	...	...	...	...	...	...	...
Ohio	263,151	431	314,942	81,211	311,321	87,668	...
Pennsylvania	178,600	397	144,205	84,419	177,350	91,896	...
South Dakota	...	...	...	...	...	...	...
Tennessee	8,530	138	121,077	50,269	237,311	...	...
Utah	...	...	125,811	55,916	194,081	32,398	...
Washington	33,249	...	150,316	40,084	190,027	31,671	...
West Virginia	118,965	224	205,692	101,287	209,040	77,607	...

STATES AND COUNTRIES SINCE 1886, AS COMPARED WITH OHIO. — Continued.

	1888.			1889.			1900.		
	Number of Tons Mined for Each Accident.		Number of Miners for Each Life Lost.	Number of Tons Mined for Each Accident.		Number of Miners for Each Life Lost.	Number of Tons Mined for Each Accident.		Number of Miners for Each Life Lost.
	Fatal.	Non-fatal.		Fatal.	Non-fatal.		Fatal.	Non-fatal.	
Alabama	148,705	.....	220	187,119	213,851	323	223,603	461,538	386
Colorado .....	.....	.....	.....	.....	.....	.....	189,508	87,234	.....
Great Britain	224,991	.....	.....	.....	.....	.....	.....	.....	.....
Illinois	247,991	42,464	467	278,982	39,254	440	267,595	41,168	419
Indiana	233,951	.....	.....	390,998	43,444	424	349,059	35,301	549
Iowa .....	.....	.....	.....	247,470	190,365	401	98,943	57,892	194
Kansas .....	.....	.....	.....	256,056	91,042	637	.....	.....	.....
Kentucky	590,355	.....	1,401	643,634	75,313	1,379	295,334	54,572	601
Maryland	1,031,611	133,111	1,143	.....	.....	.....	437,863	.....	663
Missouri	315,350	105,117	821	227,986	138,752	.....	299,502	150,175	764
Nova Scotia .....	.....	.....	.....	146,796	165,146	.....	.....	.....	.....
Ohio	270,408	90,736	545	269,643	77,985	475	285,692	54,569	466
Pennsylvania	332,852	140,278	.....	283,167	184,451	430	299,300	135,786	421
Tennessee	162,499	71,738	411	186,806	50,454	384	390,404	.....	869
Utah	224,432	48,093	.....	.....	23,733	.....	5,904	19,537	8
Washington	197,251	23,670	187	42,613	29,965	73	73,243	31,000	128
West Virginia	184,026	132,316	237	182,529	84,197	231	133,949	107,512	154

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AND COUNTRIES SINCE 1886, AS COMPARED WITH OHIO.—Concluded.

	1901.			1902.			1903.		
	Number of Tons Mined for Each Accident.		Number of Miners for Each Life Lost.	Number of Tons Mined for Each Accident.		Number of Miners for Each Life Lost.	Number of Tons Mined for Each Accident.		Number of Miners for Each Life Lost.
	Fatal.	Non-fatal.		Fatal.	Non-fatal.		Fatal.	Non-fatal.	
Alabama	218,186	.....	345	206,589	.....	358	205,376	.....	339
Colorado	108,698	.....	145	103,094	88,508	123	194,382	70,684	257
Illinois	263,716	.....	311	303,245	73,944	465	224,073	85,257	319
Indiana	292,466	36,182	504	265,133	60,436	547	181,683	45,011	.....
Iowa	165,232	102,704	179	210,776	92,741	539	262,132	106,803	578
Kansas	267,806	.....	439	180,359	73,698	321	167,464	61,596	297
Kentucky .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland	426,074	.....	448	.....	.....	.....	.....	.....	.....
Missouri	253,333	.....	615	406,357	225,754	916	250,902	157,975	539
Nova Scotia .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	282,240	45,976	465	293,818	53,058	462	215,555	53,420	363
Pennsylvania	268,818	123,345	391	216,987	14,920	297	257,985	99,149	377
Tennessee	86,038	47,321	191	18,727	100,770	39	185,029	68,725	372
Utah	153,607	115,205	198	205,179	91,191	308	251,739	50,348	312
Washington	92,748	30,171	178	91,265	30,050	179	127,619	38,439	195
West Virginia	154,738	111,755	249	194,639	97,736	.....	144,111	102,752	248

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE
TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AND COUN-
TRIES SINCE 1886, AS COMPARED WITH OHIO — Continued.

States.	1904.		Number of Miners for Each Life Lost.
	Number of Tons Mined for Each Accident.		
	Fatal.	Non-fatal.	
Missouri	374,154	257,231	898
Kentucky	355,429	91,136	684
Indiana	290,365	46,349	524
Maryland	285,146	115,600	400
Illinois	236,165	73,132	318
Ohio	208,337	56,256	388
* West Virginia	192,748	127,889	300
† Pennsylvania	192,219	110,723	299
Utah	156,327	25,627	222
Alabama	134,204	137,477	210
Washington	93,732	53,809	149
Colorado	76,141	57,428	121

* Tons of 2,240 pounds. Report ending June 30, 1904.

† Bituminous coal only.

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE
TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AS COM-
PARED WITH OHIO — Concluded.

States.	1905.		Number of Miners for Each Life Lost
	Number of Tons Mined for Each Accident.		
	Fatal.	Serious.	
Pennsylvania (Anthra.)	109,037	54,477	261
Pennsylvania (Bitum.)	249,189	110,938	344
Illinois	186,851	69,502	298
West Virginia	181,873	141,134	227
Ohio	226,628	69,448	388
Alabama	64,325	.....	94
Indiana	233,957	106,757	396
Colorado	152,367	89,896	203
Maryland	351,631	77,478	479
Missouri	398,099	168,427	945
Washington	98,434	14,218	180
Iowa	261,770	72,404	678

FATAL ACCIDENTS FOR THE YEAR ENDING DECEMBER 31, 1905.

Date.	Name.	Nationality.	Age.	Cause of Casualty.	Name of Mine.
February 21	Herman Bryan	American	51	Crushed between cage and shaft.	Luhrig No. 1.
June 6	George Culp	American	23	Killed by a fall of soapstone.	No. 31.
July 16	Wm. Staggerwalt	American	16	Struck by a loaded trip.	Luhrig No. 1.
July 31	Soe Chesser	American	18	Killed by riding trip.	Luhrig No. 1.
August 18	Uno Powell	American	27	Killed by a fall of slate.	Sedalia.
October 3	Leonard Elbert	American	28	Killed by being run over by loaded mine car.	No. 256.
October 10	Howard Ross	American	28	Killed by a fall of coal.	Eclipse.
November 11	O. L. Collins	American	56	Killed by a fall of slate.	Sedalia.
November 25	Grover Morgan	American	15	Killed by jumping on motor trip.	McLeish No. 31.
ATHENS COUNTY.					
February 24	Giambotiato Viola	Italian	35	Killed by a fall of soapstone.	Empire No. 1.
March 2	Bortola Biella	Italian	30	Killed by a fall of soapstone.	Delora No. 1.
March 30	George Kasarda	Hungarian	27	Killed by a fall of coal.	Troll No. 1.
April 11	Charles McGrew	American	18	Killed by being run over by mine cars.	Provident.
April 29	Stria Challa	Polish	25	Killed by a fall of soapstone.	Empire No. 1.
May 27	Joe Beran	Bohemian	41	Killed by a fall of soapstone.	Wheeling Creek No. 1.
June 5	John Hannah	Scotch	41	Killed by a fall of soapstone.	Empire No. 1.
June 10	Baleslaw Danilivetz	Polish	18	Killed by a fall of soapstone.	Empire No. 1.
June 19	Wm. Johnson	English	27	Killed by a fall of soapstone.	Crescent No. 24.
July 7	Jules Lassagne	French	17	Killed by a fall of soapstone.	Black Diamond.
July 29	John Iozsa	Hungarian	18	Killed by a fall of slate.	Glen.
August 11	Joe Sipulski	Polish	30	Killed by a fall of stone.	Roggs.
August 30	Andy Osenchok	Hungarian	36	Injured by explosion of powder; died September 6th.	Wheeling Creek No. 2.
September 12	Steve Bartoni	Italian	35	Killed by a fall of stone.	Barton.
September 18	Patrick Brisslenn	American	25	Crushed by mining machine.	Gaylord.
October 31	Sylvester Kindal	American	53	Killed by a fall of soapstone.	Morgan.
November 8	R. G. Fitzgibbons	Canadian	31	Leg broken by impingement of mine cars attempting to kick switch open; died November 18th, 1905.	Provident No. 1.
November 21	Michael Facinik	Slav	26	Back broken by fall of soapstone.	Wheeling Creek No. 2.
November 29	John West	American	27	Leg cut off by mining machine.	Wheeling Creek.
November 29	Steve Vcovatch	Hungarian	17	Killed by electric current.	Barton.
November 29	Alex. Murdk	Hungarian	24	Killed by a fall of stone.	Barton.
December 29	John Smila	Hungarian	27	Killed by fall of stone and coal.	Black Oak.
CARROLL COUNTY.					
December 13	George Yost	German	28	Killed by fall of draw slate.	Magnolia.

FATAL ACCIDENTS, ETC.—Continued.

Date.	Name.	Nationality.	Age.	Cause of Casualty.	Name of Mine.
February 8	Richard Hazel	American	22	COLUMBIANA COUNTY. Killed by a fall of slate. Run over by dilly trip.	Big Vein Fairfield No. 2.
September 8	Wm. Jarrett	American	35		
April 11	Alex. Moore	American	18	COSHOCOTON COUNTY. Run over by mine cars.	Best Wade No. 4.
July 21	David Jones	Welsh	42		
January 16	Oliver Walters	American	30	GUERNEY COUNTY. Injured by shot blowing through rib; died Jan. 18, 1908. Killed by a fall of slate. Injured by a fall of stone; died April 15, 1908. Killed by a fall of slate. Killed by a fall of stone. Killed by a fall of stone. Injured by fall of coal; died June 20th, 1908. Killed by mine cars. Killed by collision of mine cars.	Detroit Detroit Old Orchard Wellbunding Midway Midway Old Orchard Murray Hill Ideal
February 14	Steven Olock	Austrian	26		
March 10	Andy Birka	Austrian	38		
March 22	John R. Jones	Welsh	42		
May 22	John McLaughlin	American	40		
May 22	James Warren	American	40		
June 20	Wm. Loggins	American	23		
June 20	Thomas Fabing	Austrian	23		
October 14	Abram Love	American	18		
July 23	Isaac McElvieve	Polish	52	HARRISON COUNTY. Killed by fall of stone.	Roby. Roby.
July 23	Martias West	Polish	20		
April 12	Lewis Lonberger	American	22	HOCKING COUNTY. Killed by fall of slate.	John No. 2 New Pittsburg No. 2.
August 20	Thomas Ellis	American	54		
March 9	Reuben Schlager	American	28	HOLMES COUNTY. Killed by fall of stone.	Horn.
January 20	David Ragland	American	28	JACKSON COUNTY. Injured by fall of slate; died January 21, 1908. Killed by being run over by mine car. Injured by fall of slate; died Sept. 14, 1908. Injured by fall of slate; died Sept. 27, 1908. Inj. by explosion of bag of powder; died Oct. 16, 1908. Injured by fall of slate; died Oct. 24, 1908.	Superior No. 4 Superior No. 5 Tom Corvin No. 1. Fluhart No. 2. Domestic. Superior No. 8.
February 13	Emerson Olier	American	18		
September 13	James Null	American	25		
September 26	Steven Cove	Irish	55		
October 10	David J. Davis		
October 13	Alonso Conkle		

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November	16	George Whipple	American	57	Killed by fall of slate.	Jackson Hill.
November	24	Alva Clark	American	46	Injured by fall of slate; died December 6, 1905.	Fluhart No. 1.
JEFFERSON COUNTY.						
January	4	Thomas Alexander	Hungarian	32	Killed by fall of stone.	Long Run.
January	5	Anthony Walcko	Polish	36	Killed by coming in contact with live wire.	U. S. No. 7.
January	24	John Cassell	Polish	43	Killed by fall of slate.	U. S. No. 6.
January	27	Frank Omorski	Polish	20	Leg broken by mining machine; died February 10, 1905.	Amsterdam.
February	3	Thomas Oborski	Polish	34	Killed by fall of draw slate.	Florence.
February	4	James Pannock	French	30	Killed by coming in contact with electric wires.	Walnut Hill No. 1.
February	22	Fortunato Frederick	Hungarian	25	Killed by a fall of soapstone.	Rush Run No. 2.
March	11	Charles Yonco	Italian	44	Killed by a fall of slate.	Roby No. 4.
April	17	Luigi Cracron	Hungarian	34	Killed by a fall of soapstone.	Jefferson No. 1.
April	25	Frank Szeridi	Hungarian	40	Killed by a fall of roof.	Conner No. 2.
June	5	Jacob Plevo	Polish	27	Killed by a fall of roof.	Edgar No. 2.
June	19	Richard Ammond	German	31	Killed by falling down shaft.	Zerbe.
July	1	Zefmo Bucco	Italian	29	Killed by coming in contact with live wire.	U. S. No. 9.
August	29	Joe Cuck	Polish	32	Killed by fall of stone.	U. S. No. 2.
September	19	James Koskash	Bohemian	36	Killed by fall of draw slate.	Plum Run.
October	3	John Posec	Hungarian	32	Killed by coming in contact with electric wire.	Jefferson No. 1.
October	11	Victor Zamboni	Italian	32	Killed by fall of slate.	U. S. No. 9.
October	23	Matthew Luczyou	Slav	25	Ini. by fall of stone August 16, 1906; died Oct 23, 1906	Edgar No. 2.
December	11	George Chrickeck	Hungarian	33	Killed by fall of stone.	Edgar No. 1.
December	11	Tony Uebe	Hungarian	24	Killed by fall of stone.	Rush Run No. 3.
December	13	Martin Skokin	Hungarian	30	Killed by fall of soapstone.	U. S.
December	29	Parker Schmidt	American	18	Killed by motor	
LAWRENCE COUNTY.						
October	7	Mitchell Martin	American	32	Injured by fall of rock; died October 9, 1905.	Pancake.
October	16	Henry E. Boyer	American	42	Killed by fall of limestone.	Hanging Rock.
December	20	Amaziah Buffington	American	21	Killed by coal from flying shot.	Buckhorn.
MEDINA COUNTY.						
June	21	Pleasant Harris	American	44	Killed by being run over by mine cars.	Wagoner.
MEIGS COUNTY.						
December	13	Thomas Eynon	American	60	Killed by fall of rock.	Syracuse Slope.
MUSKINGUM COUNTY.						
November	2	Wm. Russell	American	58	Injured by fall of slate; died Nov. 4, 1905.	Blue Rock.
NOBLE COUNTY.						
July	29	O. S. Lagrange	American	37	Killed by fall of coal.	Bell Valley.
December	15	Frank Shroll	Polish	45	Killed by coming in contact with live wire.	Noble.

FATAL ACCIDENTS, ETC. — Concluded.

Date.	Name.	Nationality.	Age.	Cause of Casualty.	Name of Mine.
March 30	David Sorrell	American	41	Killed by fall of coal.	Indian Run No. 1.
May 20	Wm. Donnelly	American	40	Killed by explosion of gas.	Captain.
June 6	Howard Hall	American	20	Killed by being run over by mine cars.	Lyonsdale.
September 14	John Sepos	Hungarian	27	Injured by fall of slate; died August 9, 1905.	No. 301.
October 6	Chauncey Hill	American	23	Killed by being caught in chain of mining machine.	Keystone No. 2.
September 31	Louis F. Tippy	American	24	Killed by loaded mine cars.	Beech Grove.
October 6	James Cusak	Hungarian	50	Killed by fall of slate.	No. 9.
November 9	John Smith	Polish	16	Run over by motor trip.	No. 288.
November 20	George Robinson	American	40	Killed by fall of bone coal.	San Toy.
November 20	Frances Waugh	American	22	Injured by fall of bone coal; died Nov. 21, 1905.	San Toy.
August 25	John Forney	American	55	Killed by being struck by descending cage.	Mullen.
March 15	Matthew Smith	German	42	Killed by fall of rock.	No. 7.
March 16	Dominic Guella	Italian	44	Overcome by fumes of powder smoke and fell in pond of water, drowning.	Indian Run.
July 28	John Watts	American	35	Killed by fall of stone.	No. 17.
October 7	Godfried Kemp	German	43	Killed by fall of stone.	Newman Creek.
November 3	Frank Hoover	American	42	Killed by fall of roof.	Fox Run.
January 7	Steve Zigmund	Slav	28	Injured internally by fall of rock; died Jan. 8, 1905.	Goshen No. 2.
January 16	John Rico	Slav	18	Killed by fall of rock.	Beaver Dam No. 1.
April 25	Charles Burkett	German	53	Killed by fall of coal.	Beatty.
May 16	Lemuel Deming	American	27	Killed by fall of clay.	Royal Goshen.
May 24	Grover Brinkman	American	20	Killed by fall of rock.	Van Kirk.
June 12	Wm. Curtis	American	31	Killed by fall of stone.	Robison-Graves S. P.
September 20	Maria Dessevlio	Italian	32	Killed by fall of slate.	East Goshen No. 1.
November 11	Charles Layton	American	42	Injured by fall of coal; died Nov. 16, 1905.	West Goshen.
December 10	Alfred Moore	English	35	Killed by fall of slate.	East Goshen.
November 4	George Heckenberger	American	30	Killed by fall of rock.	Porter.

FATALITIES NOT CONSIDERED MINE ACCIDENTS PROPER.

During the year, seventeen (17) fatal accidents were reported to this Department which have not been recorded as "Mine Accidents Proper," owing to the circumstances surrounding them.

On February 20th, a boiler explosion occurred at the mouth of the Provident mine owned by the Provident Coal Co., St. Clairsville, Ohio, in which four men lost their lives and twelve others were injured. Some were only slightly injured, while others were unable to resume their duties for a period of from one to three months, and others indefinitely. Information adduced at the Coroner's inquest developed that the boiler which exploded was only a temporary one used in hoisting coal until the tippie and hoisting machinery were ready for use, and was located near the air shaft. It was a 30 H. P., and the circumstances of the explosion seem to have been an unforeseen accident, and that the mechanical cause of the explosion lay in the defective stay bolts which could not be detected by ordinary inspection. The force of the explosion lifted the boiler 200 feet in the air, and carried it a distance of 600 feet over the top of the tower and other buildings without injuring them, and even the boiler was very slightly damaged. The deceased were terribly burned and mutilated. A number of the injured were not in the employ of the company, and the boiler house was utilized as a loafing place.

On October 9th, an explosion of several cans of powder took place in a blacksmith shop at the Andrey mine, a small country bank located in Muskingum County, Ohio, resulting in the death of three persons. The explosion was caused by a spark from the anvil (at which one of the victims of the accident was making a wedge), falling into an open keg of powder which had been left open carelessly by Chas. Smith, who had been preparing a cartridge. The explosion of this keg caused three others in an adjoining room to explode with horrifying results. This is simply another example of the utter disregard of necessary precautions, especially in the use and handling of these high explosives; not only does it often terminate in the death of the victim through his own carelessness, but innocent persons are sacrificed as well. While "Self Preservation" may be the first law of nature, the protection of others should also receive serious consideration.

These two accidents constitute the most important accidents in point of number at any one time occurring during the year. One accident was reported during the year of more than unusual circumstance in the case of Geo. Spear, eighteen years of age, who was employed as engineer at the Piney Fork mine, Jefferson County, Ohio. Mr. Spear was not on duty at the time of the accident, but was in the power house at night and

had lain down on the inside of the large belt of one of the generators that had been stopped, and went to sleep. Some time after, the night engineer not knowing that any one was sleeping there, started the engine, and Spear was wound in between the belt and fly wheel and crushed to death. It required several hours to extract the body.

The remainder of these fatalities were due to various causes, such as being run over by railroad cars, falling from trestle, and other dangers which surround the miner's vocation.

FATAL ACCIDENTS OCCURRING IN AND AROUND THE MINES OF THE STATE, BUT NOT CONSIDERED MINE
ACCIDENTS PROPER.

Date.	Name.	Nationality.	Age.	Cause of Casualty.	Name of Mine.	County.
June 2	Milton A. Williams	American	43	Killed by being run over with railroad cars	Eclipse No. 3	Athens.
February 20	Eli Mente	Italian	...	Killed by boiler explosion	Provident	Belmont.
February 20	Mike Miller	Italian	...	Killed by boiler explosion	Provident	Belmont.
February 20	Vaco Tomovich	Italian	...	Killed by boiler explosion	Provident	Belmont.
February 20	Wm. H. Adams	American	...	Killed by boiler explosion	Provident	Belmont.
November 4	Ino. Hootman	American	30	Killed by white loading clay	Greer-Baetty Clay Mine	Carroll.
July 3	Robert Roberts	American	...	Killed by three bents of new tippie falling	White Ash	Guernsey.
July 1	Leonard Smith	American	47	Injured by explosion of powder; died July 9th	Standard Clay	Jefferson.
August 6	George Spear	American	18	Pulled under fly wheel at power house	Piney Fork	Jefferson.
December 14	Andy Szabo	Hungarian	30	Injured by collision of mine cars; died Dec. 22	Dillon No. 2	Jefferson.
February 3	Ios. Sabo	Hungarian	33	Killed by fall of gypsum	North	Ottawa.
October 9	Charles Smith	American	43	Killed by an explosion of powder in blacksmith shop	Andrey	Perry.
October 9	Lyman Chapin	American	35	Killed by an explosion of powder in blacksmith shop	Andrey	Perry.
October 9	Fred Hedley	American	23	Killed by an explosion of powder in blacksmith shop	Andrey	Perry.
May 12	Jos. Hodgson	American	32	Subject to epileptic fits and fell in front of loaded mine cars	No. 9	Stark.
December 6	Williard Kouth	American	18	Killed by falling from trestle	Pocock No. 8	Stark.
June 5	Wm. Pratt	German	40	Dropped dead in the mine	No. 14	Wayne.

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IMPROVEMENTS.

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PERMANENT IMPROVEMENTS.

There was an increase in the number of permanent improvements made in the mines of the State amounting to thirty-three, the total number amounting to two hundred and ninety, as follows: Furnaces, 22; fans, 55; air shafts, 32; second openings, 121; safety catches, 12; stairways, 42; and speaking tubes, six (6).

In our 1904 report attention was called to the disregard, in many shaft mines, to comply with the intent of the law by providing second openings where there were more than ten men employed, and that during the ensuing year the law would necessarily have to be complied with. As a result of the vigilance of the District Mine Inspectors in this special regard, one hundred and twenty-one (121) second openings were made, an increase of sixty-six (66) over the year 1904.

The largest number was reported from Perry county, fifteen (15) in all. During the indisposition of Mr. Jno. T. Dolan, successor of L. W. Hull, in the Third Mining District, Mr. Wm. H. Turner, Inspector for the Fifth District, in January was delegated to the counties of Perry and Muskingum, which resulted in a large number of improvements being made. In 1904 no second openings were reported for either Perry or Muskingum Counties, while in 1905, under the direction of Messrs. Turner and Pritchard, twenty-three (23) were made; eight in Muskingum and fifteen (15) in Perry counties. One report was made of a mine visited which had been in operation fifty years in open violation and disregard of the mining laws without a second opening for the escape of the men employed in case an accident occurred to the permanent opening. This district especially seems to have been neglected so far as enforcing the law regarding openings, but we are pleased to say that when the position of the Department was once made evident, with but few exceptions, managers of mines readily complied with the requests of the District Inspectors in charge. We know of no more indifferent act that could be perpetrated than that of subjecting men employed under ground without any means of escape in case the main shaft should become inaccessible, and we hope that this ruling of the Department will be received in the same humane spirit in which it has been promulgated.

The following tables give in detail the number of improvements made, the Inspector under whose direction they were completed, and also the counties in which they were made:

TABLE SHOWING THE NUMBER AND CHARACTER OF THE PERMANENT IMPROVEMENTS MADE IN THE MINES OF THE STATE FROM JANUARY 1, 1905, TO DECEMBER 31, 1905, INCLUSIVE.

Inspector.	Furnaces.	Fans.	Air Shafts.	Second Openings.	Safety Catches.	Stairways.	Speaking Tubes.	Totals.
Thos. Waters	6	3	2	15	2	2	.....	30
Jro. L. McDonald.....	2	7	5	5	2	8	5	34
Jas. Pritchard	4	10	7	24	2	5	.....	52
Thos. McGough	2	9	4	25	2	1	.....	43
W. H. Turner.....	2	6	6	27	2	10	1	54
Jas. P. Davis.....	5	16	8	6	.....	3	.....	38
W. H. Miller.....	1	4	.....	19	2	13	.....	39
Total	22	55	32	121	12	42	6	290

TABLE SHOWING THE NUMBER AND CHARACTER OF THE PERMANENT IMPROVEMENTS MADE IN THE MINES OF THE STATE BY COUNTIES DURING THE YEAR OF 1905.

Counties.	Furnaces.	Fans.	Air Shafts.	Second Openings.	Safety Catches.	Stairways.	Speaking Tubes.	Totals.
Athens		5	4	3	2	5	5	24
Belmont	2	5	5	11	2	1		26
Carroll	2	1	1	1		1		6
Columbiana		2	6	2		2		12
Coshocton		2	2	1				5
Guernsey		2		7	2	3	1	15
Harrison				4				4
Hocking		4	1	8				13
Holmes				2				2
Jackson	1	1	1	9	2	2		16
Jefferson	3	16	1	13				33
Lawrence	5	1	1	2				9
Medina				5		5		10
Meigs	2	2	1	2		3		10
Morgan				3				3
Muskingum	2		1	8		3		14
Ottawa		1		1		1		3
Perry	2	6	5	15	2	6		36
Portage				1		1		2
Stark	1	1		6	2			10
Summit		1				2		3
Trumbull		1		1				2
Tuscarawas	2	2	3	8		3		18
Vinton		1		4				5
Wayne		1		4		4		9
Total	22	55	32	121	12	42	6	290

TABLE SHOWING THE NUMBER AND CHARACTER OF PERMANENT IMPROVEMENTS MADE IN THE MINES OF THE STATE FROM 1884 TO 1905 INCLUSIVE.

Years.	Furnaces.	Fans.	Air Shafts.	Second Openings.	Safety Catches.	Stairways.	Speaking Tubes.	Ventilating Baskets.	Totals.
1884	43	10							53
1885	45	19	45		13				122
1886	13	6	22	10		12			63
1887	39	9	50	7		8			113
1888	43	4	52	17	13	12			141
1889	42	13	57	21	7	3	3		146
1890	57	20	66	46	8	11	4		212
1891	53	17	55	26	19	19	5		194
1892	37	26	65	27	13	7	4	2	181
1893	77	35	131	67	16	19	5	4	354
1894	55	18	106	60	7	11	3	9	269
1895	66	17	105	60	9	11	3	13	284
1896	56	21	93	81	5	7	3	14	280
1897	40	22	75	44	4	7	3	9	204
1898	44	17	73	45	7	11	1	15	213
1899	36	25	60	45	11	13	7	3	200
1900	24	27	69	31	1	9	1	8	170
1901	40	45	66	31	11	5	7	3	208
1902	50	59	98	57	21	20	10	8	303
1903	56	71	94	49	17	19	10	9	325
1904	31	54	68	55	21	18	12	3	257
1905	22	55	32	121	12	42	6		290
Totals	969	590	1,477	880	215	264	87	101	4,621

WEIGH SCALES.

(163)

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100

WEIGH SCALES.

(163)

TABLE SHOWING THE NUMBER OF SCALES TESTED, AND RESULT OF THE EXAMINATION FROM JANUARY 1, 1905, TO DECEMBER 31, 1906, BY COUNTIES.

Counties.	Number of Sets of Scales Tested.	Number of Sets Found Correct.	Number of Sets Found Incorrect.
Athens	12	8	4
Belmont	20	27	7
Carroll	4	2	2
Columbiana	6	6	0
Coshocton	1	1	0
Hocking	2	2	0
Gallia	1	1	0
Guernsey	25	24	1
Harrison	8	8	0
Jackson	10	7	3
Jefferson	18	14	4
Medina	4	4	0
Meigs	1	1	0
Morgan	3	3	0
Muskingum	12	10	2
Noble	2	2	0
Perry	16	16	0
Portage	4	4	0
Stark	40	39	1
Summit	4	4	0
Tuscarawas	14	14	0
Vinton	2	2	0
Wayne	6	6	0
Totals	225	205	20

TABLE SHOWING THE NUMBER OF SCALES TESTED, AND RESULT OF THE EXAMINATION FROM 1887 TO DECEMBER 31, 1905, INCLUSIVE.

Years.	Number of Sets of Scales Tested.	Number of Sets Found Correct.	Number of Sets Found Incorrect.	Remarks.
.....	74	.....	.....
.....	55	41	14	
.....	48	33	15	
.....	59	46	13	
.....	61	37	24	
.....	86	62	24	8 in favor of company, 6 in favor of miners.
.....	120	81	39	12 in favor of company, 3 in favor of miners.
.....	64	37	27	15 in favor of company, others not known.
.....	96	65	31	15 in favor of company, 14 in favor of miners.
.....	93	65	28	5 against miner, 1 against operator.
.....	77	59	18	3 against miner, 3 against operator.
.....	99	82	17	4 against miner, 1 against operator.
.....	112	93	19	
.....	131	115	16	3 against miner, 1 against operator.
.....	139	115	24	
.....	154	131	23	
.....	188	157	31	
.....	230	208	22	
.....	225	205	20	
Totals..	2111	.....	.....

TESTING SCALES.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
1905.				
January	No. 10 X	Sunday Creek Coal Co., Columbus, Ohio.	D. H. Williams	Correct.
May	No. 275	Continental Coal Co., Columbus, Ohio.	D. H. Williams	Incorrect. 50 lbs. against miners.
March	No. 3	Athens County.		
March	Wipey	A. J. Juniper, Nelsonville, Ohio.	D. H. Williams	Correct.
July	No. 311	New York Coal Co., Columbus, Ohio.	D. H. Williams	Correct.
August	No. 22	Sunday Creek Coal Co., Columbus, Ohio.	Ino. L. McDonald	Found correct. Railroad scales.
August	No. 20	Jacob Schueller, Sharpsburg, Ohio.	Ino. L. McDonald	Found correct. Hopper scales.
September	No. 10	Sunday Creek Coal Co., Columbus, Ohio.	Ino. L. McDonald	Found incorrect. Railroad scales.
September	No. 14	Nedlun Coal Co., Grouse, Ohio.	Ino. L. McDonald	Found correct. Hopper scales.
October	No. 23	A. J. Juniper & Sons, Nelsonville, Ohio.	Ino. L. McDonald	Found correct. Hopper scales.
October	Juniper No. 3	Missylvania Coal Co., Trimble, Ohio.	Ino. L. McDonald	Found correct. Railroad scales.
November	Missylvania No. 23	Sunday Creek Coal Co., Columbus, Ohio.	Ino. L. McDonald	Found correct. Railroad scales.
December	No. 206	Johnson Coal Mining Co., Columbus, Ohio.	Ino. L. McDonald	Found incorrect. Hopper scales.
December	Eclipse No. 3			
BELMONT COUNTY.				
January	Schicks	M. J. Schick Co., Bellaire, Ohio.	Thos. McGough	Found correct. One set.
January	Morgan	O. Malley & Johnson, Bellaire, Ohio.	Thos. McGough	Found correct. One set.
February	Glen	Reimont Coal Co., Pittsburgh, Pa.	Thos. McGough	Found correct. Two sets.
February	Atma Standard	American Steel Co., Pittsburgh, Pa.	Thos. McGough	Found correct. Two sets.
February	Crescent No. 24	Loran Coal and Dock Co., Cleveland, Ohio.	Thos. McGough	Found correct. Two sets.
February	Neffs No. 1	Neffs Coal Co., Velf, Ohio.	Thos. McGough	Found correct. Two sets.
February	Crescent No. 3	Loran Coal and Dock Co., Cleveland, Ohio.	Thos. McGough	Found correct. One set.
March	Black Oak	Kennon Coal and Mining Co., Cleveland, Ohio.	Thos. McGough	Found correct. One set.
March	Kennon No. 1	Kennon Coal Co., Flushing, Ohio.	Thos. McGough	Found correct. One set.
March	Taggart	Thos. McGough	Thos. McGough	Found correct. One set.
March	Boggs	Thos. McGough	Thos. McGough	Found correct. One set.
March	Barton	Thos. McGough	Thos. McGough	Found correct. One set.
March	Columbia	Thos. McGough	Thos. McGough	Found correct. One set.
March	Maple Hill	Thos. McGough	Thos. McGough	Found correct. One set.
March	Providence	Thos. McGough	Thos. McGough	Found correct. One set.
April	Barton	Thos. McGough	Thos. McGough	Found correct. One set.
May	Thos. McGough	Thos. McGough	Thos. McGough	Found correct. One set.
June	Thos. McGough	Thos. McGough	Thos. McGough	Found correct. One set.
July	Troll No. 1	Thos. McGough	Thos. McGough	Found correct. One set.
August	Moore's Run	Thos. McGough	Thos. McGough	Found correct. One set.
September	Moore's Run	Thos. McGough	Thos. McGough	Found correct. One set.
September	Moore's Run	Thos. McGough	Thos. McGough	Found correct. One set.
September	Moore's Run	Thos. McGough	Thos. McGough	Found correct. One set.
October	Lorena	Thos. McGough	Thos. McGough	Found correct. One set.
November	Kennon	Thos. McGough	Thos. McGough	Found correct. One set.
November	Black Diamond	Thos. McGough	Thos. McGough	Found correct. One set.
November	Maple Hill	Thos. McGough	Thos. McGough	Found correct. One set.

CARROLL COUNTY.					
28	March	Somers No. 2	Somers Mining Co., Cleveland, Ohio	Jas. P. Davis	Found correct.
28	March	Sandy Valley	Robinson Clay Product Co., Malvern, Ohio	Jas. P. Davis	Found correct.
29	September	Greer-Beatty	Greer-Beatty C. Co., Magnolia, Ohio	Jas. P. Davis	Found incorrect.
29	September	Beatty No. 2	National Fire Proofing Co., Magnolia, Ohio	Jas. P. Davis	Found incorrect.
COLUMBIANA COUNTY.					
9	January	Fairfield No. 2	Fairfield Coal Co., New Waterford, Ohio	Jas. P. Davis	Found correct.
17	February	Slope	A. & P. Coal Co., Cleveland, Ohio	Jas. P. Davis	Found correct.
24	February	Slope	O. & P. Coal Co., Cleveland, Ohio	Jas. P. Davis	Found correct.
26	March	Strabley	Janes Strabley, Salineville, Ohio	Jas. P. Davis	Found correct.
12	April	Big Walnut	Peerless Coal Co., Cleveland, Ohio	Jas. P. Davis	Found correct.
11	December	Fairfield No. 2	Fairfield Coal Co., Cleveland, Ohio	W. H. Miller	Found correct.
COSHOCTON COUNTY.					
14	April	Rest	Rest Coal Co., Columbus, Ohio	W. H. Turner	Found correct.
HOCKING COUNTY.					
2	May	Cawthorn No. 6	New Pittsburgh Coal Co., Columbus, Ohio	Jas. Pritchard	Found correct.
22	July	Consol No. 3	New Pittsburgh Coal Co., Columbus, Ohio	Jas. Pritchard	Found correct.
GALLIA COUNTY.					
12	April	Carl No. 1	Carlton Coal Co., Carlton, Ohio	D. H. Williams	Found correct.
GUERNSEY COUNTY.					
2	January	Blue Bell	Opperman Coal Co., Cambridge, Ohio	W. H. Turner	Found accurate.
5	January	Cora	Wills Creek Coal Co., Detroit, Mich.	W. H. Turner	Found inaccurate. Advised expert.
6	January	Little Kate	National Coal Co., Akron, Ohio	W. H. Turner	Found accurate. Three sets.
19	January	Detroit	Wills Creek Coal Co., Detroit, Mich.	W. H. Turner	Found accurate.
4	February	Nicholson No. 1	Ohio Coal Co., Cambridge, Ohio	W. H. Turner	Found accurate.
14	February	Midway	Wills Creek Coal Co., Detroit, Mich.	W. H. Turner	Found accurate.
4	March	Nicholson No. 1	Ohio Coal Co., Cambridge, Ohio	W. H. Turner	Found accurate.
16	March	Union No. 1	Toledo Clay and Coal Co., Toledo, Ohio	W. H. Turner	Found accurate.
17	March	Indian Camp	Atlas Coal Co., Parkersburg, W. Va.	W. H. Turner	Found accurate.
22	March	Walhounding	Morris Coal Co., Cambridge, Ohio	W. H. Turner	Found accurate.
24	March	Imperial	Imperial Mining Co., Cleveland, Ohio	W. H. Turner	Found accurate.
13	April	Forsythe	Ohio and N. W. Coal Co., Toledo, Ohio	W. H. Turner	Found accurate.
16	May	Leatherwood	Morris Mining Co., Cleveland, Ohio	W. H. Turner	Found accurate.
3	June	Black Top	Ohio Coal Co., Cambridge, Ohio	W. H. Turner	Found accurate.
5	June	Nicholson No. 2	Guernsey Brick & Construction Co., Cambridge, O.	W. H. Turner	Found accurate.
7	June	Guernsey Brick	Guernsey Brick & Construction Co., Cleveland, Mich.	W. H. Turner	Found correct.
7	June	Cleveland No. 1	Morris Mining Co., Detroit, Mich.	W. H. Turner	Found correct.
8	June	Ideal	Wills Creek Coal Co., Cleveland, Ohio	W. H. Turner	Found correct.
13	June	Trail Run	Pittsforth Coal Co., Cleveland, Ohio	W. H. Turner	Found correct.
20	June	Old Orchard	Morris Mining Co., Cleveland, Ohio	W. H. Turner	Found correct.

MEDINA COUNTY.					
May	15	Wagoner	Card & Prosser Coal Co., Cleveland, Ohio.	W. H. Miller	Found correct.
May	16	James No. 5	James & Paynter Coal Co., Wadsworth, Ohio.	W. H. Miller	Found correct.
May	16	Whalen No. 2	Card & Prosser Coal Co., Cleveland, Ohio.	W. H. Miller	Found correct.
August	2	Hilliard	Card & Prosser Coal Co., Cleveland, Ohio.	W. H. Miller	Found correct.
April	11	Pittsburgh	Pittsburgh Mining Co., Pomeroy, Ohio.	D. H. Williams	Found correct.
MEIGS COUNTY.					
MORGAN COUNTY.					
March	3	Ruse	Carding Coal Co., Columbus, Ohio.	W. H. Turner	Accurate.
March	10	Tropic	George M. Jones, Toledo, Ohio.	W. H. Turner	Accurate.
December	15	Rose	Carding Coal Co., Columbus, Ohio.	Jas. Pritchard	Accurate.
MUSKINGUM COUNTY.					
February	16	Ables	Muskingum Coal and Railway Co., Zanesville, Ohio	W. H. Turner	Accurate.
February	17	Oak Knob	W. J. Sculley, Detroit, Mich.	W. H. Turner	Accurate.
February	17	Dewey No. 3	I. L. Reed, Zanesville, Ohio.	W. H. Turner	Accurate.
February	21	Cadillac No. 2	Duncan Run Coal Co., Detroit, Mich.	W. H. Turner	Accurate.
February	21	Pan-American No. 11	Salzburg Coal Co., W. Bay City, Mich.	W. H. Turner	Accurate.
February	21	Haymarket No. 37	Robes & Tompkins, Columbus, Ohio.	W. H. Turner	Accurate.
February	22	Walnut Hill No. 3	Walnut Hill Coal Co., Detroit, Mich.	W. H. Turner	Inaccurate. Advised poise repaired.
February	23	No. 38	Maynard Bros., Columbus, Ohio.	W. H. Turner	Accurate.
March	9	Blue Rock	Blue Rock Coal Co., McConnellsville, Ohio.	W. H. Turner	Accurate.
April	20	Siler	The Siler Coal Co., McConnellsville, Ohio.	W. H. Turner	Poise on River Scales were loaded with lead, 40 pounds in favor of company; lead removed and scales proved accurate.
November	22	Elk	Elk Coal Mining Co., Columbus, Ohio.	Jas. Pritchard	Found correct after properly balanced.
December	13	No. 38	Maynard Bros., Columbus, Ohio.	Jas. Pritchard	Found correct.
NOBLE COUNTY.					
July	13	Noble	Wills Creek Coal Co., Detroit, Mich.	W. H. Turner	Found correct.
July	13	Laura	Bell Valley Coal Co., Cambridge, Ohio.	W. H. Turner	Found correct.
PERRY COUNTY.					
February	17	New Crescent No. 2	Kennon Coal and Mining Co., Cleveland, Ohio.	W. H. Turner	Found accurate.
February	24	W. P. Rend	Stanford Hocking Coal Co., Chicago, Ill.	W. H. Turner	Found accurate.
February	24	Union	Saltlick Coal Co., Columbus, Ohio.	W. H. Turner	Found accurate.
February	25	Keystone No. 1	Zanesville Coal Co., Zanesville, Ohio.	W. H. Turner	Found accurate.
March	25	Keystone No. 3	Zanesville Coal Co., Zanesville, Ohio.	W. H. Turner	Found accurate.

TESTING SCALES — Continued.

Date	Name of Mine	Name and P. O. Address of Company	By Whom Tested	Results
March 2	Pellow No. 1	Sunday Creek Coal Co., Columbus, Ohio	W. H. Turner	Found accurate.
March 10	Bear Run No. 1	W. A. Godline & Co., Toledo, Ohio	W. H. Turner	Found accurate.
March 21	Pearson No. 1 & No. 2	Weston Coal Co., Newark, Ohio	W. H. Turner	Found correct, but very slow.
April 22	29th Century	W. J. Hamilton Coal Co., Columbus, Ohio	W. H. Turner	Found accurate.
April 22	Perrine No. 2	Hamilton & Wallace Coal Co., Saltillo, Ohio	W. H. Turner	Found accurate.
April 25	Kyestone No. 2	Zanesville Coal Co., Zanesville, Ohio	W. H. Turner	Found accurate.
April 26	Lyonsdale	Muskegon Valley Coal Co., Detroit, Mich.	W. H. Turner	Found accurate.
April 27	Rock No. 1 and 2	Standard Hooking Coal Co., Chicago, Ill.	W. H. Turner	Found accurate.
July 11	Sam. Toy No. 1	New England Coal Co., Columbus, Ohio	W. H. Turner	Found accurate.
August 31	Pellow No. 2	Sunday Creek Coal Co., Columbus, Ohio	W. H. Turner	Found accurate.
November 23	New Crescent No. 1 & 2	Kennon Coal Co., Cleveland, Ohio	W. H. Turner	Found accurate.
PORTAGE COUNTY.				
January 17	Hutson No. 4	Hutson Coal Co., Deerfield, Ohio	W. H. Miller	Found correct.
January 19	Hutson No. 7	Hutson Coal Co., Deerfield, Ohio	W. H. Miller	Found correct.
June 13	Hutson No. 4	Hutson Coal Co., Deerfield, Ohio	W. H. Miller	Found correct.
STARK COUNTY.				
January 16	Crescent	Crescent Coal Co., Alliance, Ohio	W. H. Miller	Found incorrect.
January 23	Canton Hollow Block	Canton Hollow Block Coal Co., Canton, Ohio	W. H. Miller	Found correct.
January 25	Indian Run	Steiner Coal Co., Canton, Ohio	W. H. Miller	Found correct.
February 13	Elm Run No. 2	Somers Coal Co., Cleveland, Ohio	W. H. Miller	Found correct.
February 14	No. 3	Massillon C. M. Co., Massillon, Ohio	W. H. Miller	Found correct.
February 15	Pocock No. 3	Pocock Coal Co., Massillon, Ohio	W. H. Miller	Found correct.
February 16	No. 9	Massillon C. M. Co., Massillon, Ohio	W. H. Miller	Found correct.
February 27	Newman Creek	Newman Creek Coal Co., Massillon, Ohio	W. H. Miller	Found correct.
February 28	No. 7	Massillon C. M. Co., Massillon, Ohio	W. H. Miller	Found correct.
March 3	South Massillon	South Massillon Coal Co., Massillon, Ohio	W. H. Miller	Found correct.
March 10	North Berlin	August Smith Co., New Berlin, Ohio	W. H. Miller	Found correct.
March 20	Nat'l F. Proofing Co.	National Fire Proofing Co., Canton, Ohio	W. H. Miller	Found correct.
April 2	No. 8	Massillon Coal Mining Co., Massillon, Ohio	W. H. Miller	Found correct.
May 2	No. 7	Massillon Coal Mining Co., Massillon, Ohio	W. H. Miller	Found correct.
May 5	No. 9	Massillon Coal Mining Co., Massillon, Ohio	W. H. Miller	Found correct.
May 11	Summit Hill	Massillon Coal Mining Co., Massillon, Ohio	W. H. Miller	Found correct.
June 1	Summit Hill	Massillon Coal Mining Co., Massillon, Ohio	W. H. Miller	Found correct.
June 1	Summit Hill	Massillon Coal Mining Co., Massillon, Ohio	W. H. Miller	Found correct.
June 2	South Massillon	South Massillon Coal Co., Massillon, Ohio	W. H. Miller	Found correct.
June 2	Booth	Booth Coal Co., Navarre, Ohio	W. H. Miller	Found correct.
June 9	Booth	Booth Coal Co., Navarre, Ohio	W. H. Miller	Found correct.

June	20	Elm Run No. 3.	Somers Coal Co., Cleveland, Ohio.	W.	H.	Miller.	Found correct.
June	23	No. 1	Massillon Coal Mining Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
June	29	Fox No. 12.	Massillon Coal Mining Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
July	18	Elm Run No. 2.	Somers Coal Co., Cleveland, Ohio.	W.	H.	Miller.	Found correct.
July	25	Buckeye	Ruckeye Coal Co., Canal Fulton, Ohio.	W.	H.	Miller.	Found correct.
August	28	No. 2	Massillon Coal Mining Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
September	1	No. 1	Massillon Coal Mining Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
September	22	No. 17	Massillon Coal Mining Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
November	2	No. 3	Massillon Coal Mining Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
November	9	No. 9	Massillon Coal Mining Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
November	13	South Massillon	South Massillon Coal Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
November	20	Canton Hollow Block.	Canton Hollow Block Co., Canton, Ohio.	W.	H.	Miller.	Found correct.
November	23	Indian Run	Steiner Coal Co., Canton, Ohio.	W.	H.	Miller.	Found correct.
December	4	Elm Run No. 1.	Somers Coal Co., Cleveland, Ohio.	W.	H.	Miller.	Found correct.
December	5	No. 2	Massillon Coal Mining Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
December	6	Elm Run No. 8.	Somers Coal Co., Cleveland, Ohio.	W.	H.	Miller.	Found correct.
December	15	Newman Creek	Somers Creek Coal Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
December	18	Elm Run No. 6.	Somers Coal Co., Cleveland, Ohio.	W.	H.	Miller.	Found correct.
December	20	No. 8	Massillon Coal Mining Co., Massillon, Ohio.	W.	H.	Miller.	Found correct.
December	22	McGinty	Broombach & Keim, Louisville, Ohio.	W.	H.	Miller.	Found correct.
December	26	Hipp	Massillon Stone and Frie Brick Co., Massillon, O.	W.	H.	Miller.	Found correct.
SUMMIT COUNTY.							
May	1	Turkey Foot	Brewster Coal Co., Akron, Ohio.	W.	H.	Miller.	Found correct.
September	11	Turkey Foot	Brewster Coal Co., Akron, Ohio.	W.	H.	Miller.	Found correct.
October	12	Cottage Grove	Cottage Grove Coal Co., Akron, Ohio.	W.	H.	Miller.	Found correct.
October	23	Beechwood Massillon	Beechwood Massillon Co., Cleveland, Ohio.	W.	H.	Miller.	Found correct.
TUSCARAWAS COUNTY.							
January	11	Reeves No. 2	Reeves Coal Co., Canal Dover, Ohio.	W.	H.	Turner.	Found accurate.
January	18	Beaver Dam No. 1.	Beaver Dam Coal Co., Cleveland, Ohio.	W.	H.	Turner.	Found accurate.
March	7	Indian Hill	Hiawatha Coal Co., Toledo, Ohio.	W.	H.	Turner.	Found accurate.
March	23	West Goshen	West Goshen Coal Co., Cleveland, Ohio.	W.	H.	Turner.	Found accurate.
March	31	Goshen Hill	Goshen Hill Coal Co., Cleveland, Ohio.	W.	H.	Turner.	Found accurate.
May	2	Novelty	Novelty Brick and Coal Co., Newcomerstown, Ohio.	W.	H.	Turner.	Found accurate.
May	3	Wainwright No. 4.	Midvale-Goshen Coal Co., Cleveland, Ohio.	W.	H.	Turner.	Found accurate.
May	4	Wainwright No. 6.	Midvale-Goshen Coal Co., Cleveland, Ohio.	W.	H.	Turner.	Found accurate.
May	5	Goshen	Goshen Coal Co., Cleveland, Ohio.	W.	H.	Turner.	Found accurate.
May	6	Houk	American Sheet and Tin Plate Co., Canal Dover, O.	W.	H.	Turner.	Found accurate.
May	31	Massillon Peacock	F. Van Kirk Mineral, Ohio.	W.	H.	Turner.	Found accurate.
August	17	Fast Goshen No. 1.	Fast Goshen Coal Co., Cleveland, Ohio.	W.	H.	Turner.	Found accurate.
August	18	Goshen Shaft	Goshen Coal and Mining Co., Cleveland, Ohio.	W.	H.	Turner.	Found accurate.
August	23	Central Valley	Massillon-Tuscarawas Coal Co., Massillon, Ohio.	W.	H.	Turner.	Found accurate.
VINTON COUNTY.							
March	27	Warren Jones	Warren Jones Coal Co., Wellston, Ohio.	Thos.	Waters	.....	Found correct.
September	20	Outhwaite	Outhwaite Coal Co., Rockaway, Ohio.	Thos.	Waters	.....	Found correct.

TESTING SCALES — Concluded.

Date.	Name of Mine.	Name and P. O. Address of Company.	By Whom Tested.	Results.
February 20	Porter	Card & Prosser Coal Co., Cleveland, Ohio.....	W. H. Miller.....	Found correct.
February 28	West Lebanon No. 1... ..	West Lebanon Coal Co., Cleveland, Ohio.....	W. H. Miller.....	Found correct.
February 30	Porter	Card Prosser Coal Co., Cleveland, Ohio.....	W. H. Miller.....	Found correct.
August 20	West Lebanon No. 2... ..	West Lebanon Coal Co., Cleveland, Ohio.....	W. H. Miller.....	Found correct.
September 21	West Lebanon No. 1... ..	West Lebanon Coal Co., Cleveland, Ohio.....	W. H. Miller.....	Found correct.
December 8	West Lebanon No. 2... ..	West Lebanon Coal Co., Cleveland, Ohio.....	W. H. Miller.....	Found correct.

MINE MAPS.

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MINE MAPS FILED.

Three hundred and eighty-two maps were filed with the Mining Department during the year, a gain of forty-one as compared with 1904.

For the purpose of serving as a guide to the Mining Engineers of the State who are employed to survey and map mining properties in operation and otherwise, we herewith publish a map, which, in our estimation, is very complete in every respect. Some of the maps sent to this office for filing purposes are either so coarsely delineated or inaccurately drawn, as to render them almost worthless; in many cases the most essential elements are omitted which are required by the mining laws. However, in justice to a number of the mining engineers of the State, we are pleased to say that their work reflects credit upon themselves, and their efforts in striving to maintain a high standard in their chosen profession.

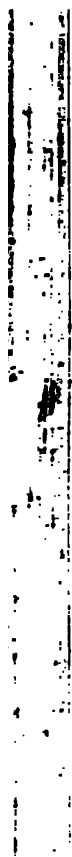
The map on the preceding page shows the entire workings and excavations of the Keystone mine, located at Crooksville, Ohio, and owned and operated by the Zanesville Coal Co., Zanesville, Ohio.

The workmanship of this map needs no comment. Like all the work of this nature sent to this office from the hands of the efficient and reliable Mining Engineer, whose name it bears, it fully speaks for itself.

The openings of this mine penetrate what is known as the thin No. 6, or Hocking Vein. The neatness and completeness of the map in every detail is simply an illustration of what every Inspector represents the inside of the mine to be. The trueness with which every entry has been laid out and driven, and the perfect, uniform regularity is a striking evidence of keen foresight, and good management.

The double entry system is carried out to the letter, the ventilation is good, and the mine, in general, a credit to the company and management. We consider Mr. Opie one of the very best mine managers in the State. The scale of this map as shown in this cut is about one inch for every 650 feet.

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971) using a Shimadzu 1601 UV-Visible Spectrophotometer. The concentration of chlorophyll was expressed in $\mu\text{g mL}^{-1}$.



DETAILED LIST OF MINE MAPS.

<i>Athens County.</i>		
Carbondale No. 2.....	Luhrig No. 1.....	No. 209.
Carbondale No. 3.....	Luhrig No. 2.....	No. 210.
No. 25 (C. & H. C. & I.)..	Luhrig No. 3.....	No. 211.
Doanville No. 1.....	McLeish No. 31.....	No. 252.
Doanville No. 1-A.....	Nels. S. Pipe.....	No. 254.
Belle Run No. 55.....	Halbert (Shaffer)	No. 256.
New Pgh. No. 5.....	No. 24	No. 267.
Wells	Sedalia	No. 275.
Jobs No. 23.....	No. 201	No. 281.
Moor (Del Carbo)	No. 203	No. 311.
Imperial No. 1.....	No. 204	No. 10-X.
Eclipse No. 3.....	No. 205	
<i>Belmont County.</i>		
Aetna Standard	Wheeling Creek No. 1.....	Gaylord.
Tine Plate	Crescent No. 2½.....	Lydia.
New Taggart	Crescent No. 3.....	Pultney.
Black Diamond	Crescent No. 3½.....	Provident No. 1.
O. & W. Va.....	Crescent No. 4.....	Schicks.
Glen	Lansing No. 4.....	Trolls No. 1.
Black Oak	Dellora No. 1.....	Trolls No. 2.
Kennon No. 2.....	Media	Trolls No. 3.
Nail Mill	Kirkwood	Cochran No. 1.
Empire No. 1.....	Neffs No. 1.....	Cochran No. 2.
Empire No. 2.....	Neffs No. 2.....	Laughlin.
.....	.....	Maple Hill.
.....	.....	Barton.
<i>Carroll County.</i>		
Russell Hill Shaft	Magnolia	Somers No. 2.
Minerva Coal	Laubacher No. 6.....	Somers No. 3 (Ab'd)
Minerva Clay	Heatherington No. 3.....	Van Kirk No. 5.
Malvern	Heatherington No. 6.....	
<i>Columbiana County.</i>		
New Shaft	Walker Clay No. 5.....	Teegarden.
Fairfield No. 2.....	New House	Farquhar.
State Line	Slope No. 1.....	Pleas. Valley No. 6.
McNabb	Slope No. 2.....	Vulcan Clay.
Wheat Hill No. 2.....	Prospect Hill No. 1.....	
.....	Prospect Hill No. 2.....	
<i>Coshocton County.</i>		
Best	Franklin No. 1.....	Cassingham No. 1.
L. C. & D. No. 5.....	Conesville No. 4.....	Cassingham No. 2.
Morgan Run No. 3.....	Oden Valley No. 1.....	Cassingham No. 3.
Wade .....	.....
<i>Gallia County.</i>		
Swan Creek .....	.....

DETAILED LIST OF MINE MAPS—Continued.

<i>Guernsey County.</i>		
Murray Hill	Kings	White Ash.
Trail Run	Old Orchard	Blue Bell.
Hartford	Black Top	Walhounding.
Forsythe	Cleveland No. 1.	Ideal.
Morton	Little Kate	Detroit.
Imperial	Nicholson No. 1.	Midway.
Klondyke	Nicholson No. 2.	Leatherwood No. 2
<i>Harrison County.</i>		
Adena	Ewing	Tippecanoe.
Roby No. 1.	Roby No. 2.	
<i>Hocking County.</i>		
No. 53 C. & H. C. & I.	New Pgh. No. 1.	S. C. Jobs No. 1.
No. 21 C. & H. C. & I.	New Pgh. No. 1½.	S. C. Jobs No. 3.
No. 19 C. & H. C. & I.	New Pgh. No. 3.	S. C. No. 207 So. Hill
No. 43 C. & H. C. & I.	New Pgh. No. 6.	Black Diamond.
No. 17 C. & H. C. & I.	New Pgh. No. 7.	
No. 19 C. & H. C. & I., So. Hill	New Pgh. No. 8.	
No. 41		
Stalters No. 2.		
<i>Jackson County.</i>		
Alma	Peerless	Chapman.
Coalton No. 3.	Crescent	Springfield.
Milton No. 2.	Rottinghaus	Grace.
Milton No. 3.	See Kay	Price.
Milton No. 4.	Star No. 4.	McKittrick.
Acorn or Jones Slope.	Fluhart No. 1.	Superior No. 1.
Jones & Morgan No. 3.	Fluhart No. 2.	Superior No. 2.
McGhee No. 4.	Fluhart No. 3.	Superior No. 3.
McGhee No. 5.	Tom Corwin No. 1.	Superior No. 4.
Northern	Wellston No. 3.	Superior No. 8.
Standard	Zagelmeyer	Superior No. 9.
	Emma No. 2.	Superior No. 10.
		Superior No. 11.
<i>Jefferson County.</i>		
Forest City Coal.	Jefferson No. 1.	Roby No. 3.
Forest City Clay.	Jefferson No. 2.	Roby No. 4.
Calumet Coal	Jefferson No. 3.	Roby No. 5.
Calumet Clay	X. L.	Russell.
Gt. Western Coal.	Kelley No. 2.	High Shaft.
Gt. Western Clay	Dunglen No. 1.	Standard or Congo.
Freeman Coal	Dunglen No. 2.	Little Giant.
Freeman Clay	Myers Coal	McCrary's.
West Pittsburg	Myers Clay	Plum Run 1 to 4.
Glens Run No. 1.	O'Neil (Herrick)	U. S. 1 to 10.
Glens Run No. 2.	Walnut Hill No. 1.	Florence.
Rush Run No. 1.	Walnut Hill No. 2.	McFadyen.
Rush Run No. 2.	Zerbe	Speaks.
Rush Run No. 3.	Portland	Wabash.
Amsterdam	Connor No. 1.	Dillon No. 2.
	Connor No. 2.	Long Run No. 1.

DETAILED LIST OF MINE MAPS — Continued.

<i>Lawrence County.</i>		
Black Fork No. 1.....	Clarion No. 1.....	New Castle.
Irish Hollow No. 1.....	Clarion No. 2.....	Kelley Coal.
Irish Hollow No. 2.....	Ginn	
Irish Hollow No. 3.....	Hall No. 1.....	
<i>Medina County.</i>		
Wagoners (Whitman) .....	.....
Chippewa (Wayne No. 2)..	James No. 4.....	James No. 5.
<i>Mahoning County.</i>		
Fairview No. 3.....	Greenamyer	
<i>Meigs County.</i>		
Peacock No. 2.....	Rutland or Stevens.....	Rolling Mill No. 2.
Peacock No. 3.....	Rockville or Kings.....	Pittsburg.
Coal Ridge	Charter Oak	Syracuse Slope.
<i>Morgan County.</i>		
Tropic .....	.....
<i>Muskingum County.</i>		
Blue Rock	Raney or Elk.....	Maynard No. 16.
No. 37 Edwards.....	Salt Run No. 2.....	Dewey No. 3.
No. 38 Peacock.....	Siler	Diamond No. 2.
<i>Noble County.</i>		
Laura	Noble (Belle Valley)	
<i>Ottawa County.</i>		
U. S. Gypsum.....	.....
<i>Perry County.</i>		
Northwest No. 26.....	San Toy No. 1.....	Beech Grove No. 6.
C. & H. C. & I. No. 49...	O. M. & M. C. No. 1.....	Keystone No. 1.
C. & H. C. & I. No. 75...	O. M. & M. C. No. 2.....	Keystone No. 2.
C. & H. C. & I. No. 7.....	Jobs-Greeley No. 1.....	Keystone No. 3.
C. & H. C. & I. No. 11....	Jobs-Greeley No. 2.....	S. C. No. 5.
C. & H. C. & I. No. 35....	Jobs-Greeley No. 3.....	S. C. No. 301.
Rock Run No. 3 New Side.	Iron Point No. 3.....	S. C. No. 302.
Rock Run No. 3 Old Side.	Rends No. 1.....	S. C. No. 268.
No. 37 Essex.....	Rends No. 2.....	S. C. No. 322.
Furnace No. 2.....	.....	S. C. No. 321.
Imperial Valley No. 6....	Midway No. 1.....	
Jones No. 15.....	Midway No. 2.....	
New Crescent No. 1.....	Midway No. 3.....	
New Crescent No. 2.....	Dixie	
Pine Run No. 44.....	Lyonsdale (New)	

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DETAILED LIST OF MINE MAPS — Concluded.

	<i>Portage County.</i>	
Hutson No. 4.....	Hutson No. 7.....	Mullins Shaft
	<i>Scioto County.</i>	
Eiford Coal	Eiford Limestone	
	<i>Stark County.</i>	
Buckeye	Mass. C. M. Co. No. 3.....	(East & West Basin)
Camp	Mass. C. M. Co. No. 5.....	
McGinty	Mass. C. M. Co. No. 8.....	
Elm Run No. 1.....	Mass. C. M. Co. No. 9.....	
Whittacre No. 5.....	Mass. C. M. Co. No. 12.....	
Whittacre No. 6.....	Mass. C. M. Co. No. 17.....	
Elm Run No. 2.....	Mass. C. M. Co. No. 19.....	
Elm Run No. 3.....	Mass. C. M. Co. No. 14.....	
Elm Run No. 5.....		
Elm Run No. 6.....		
N. F. P. Osnaburg.....		
N. F. P. Waynesburg.....		
Newman Creek		
Pocock No. 3.....		
Summit Hill		
So. Massillon (Taggart)...		
North Berlin		
Indian Run		
	<i>Summit County.</i>	
Beechwood	Turkey Foot	Swinehart.
	Gerrard No. 1.....	Hill Clay.
	<i>Tuscarawas County.</i>	
Houk	Beaver Dam No. 1.....	Twin City.
E. Goshen No. 1.....	Indian Hill	South Side.
E. Goshen No. 2.....	Central Valley No. 1.....	Huffs Run.
Goshen Hill	Central Valley No. 2.....	Reeves No. 1.
Goshen Shaft	Mullins No. 1.....	Reeves No. 2.
Goshen No. 2.....	Royal Clay No. 1.....	Thompson Run V
Goshen Central	Royal Clay No. 2.....	Massillon-Peacock
	Royal Clay No. 3.....	
	<i>Vinton County.</i>	
Alma Cement	Mohr & Minton	
Elk Fork	Outhwaite	
Clarion	Star No. 2.....	
	<i>Wayne County.</i>	
Porter	Dalton No. 14.....	Doylestown No.
California	Wayne (Colonial)	West Lebanon N
		West Lebanon N

TABLE DESIGNED TO EXHIBIT THE NUMBER OF MAPS THAT HAVE BEEN FILED AS THEY OCCUR IN EACH COUNTY IN THE STATE FROM 1874 TO 1905, INCLUSIVE.

Counties.	Maps Filed.												Total Number.
	Prior to 1884.	Prior to 1888.	Prior to 1894.	During 1897.	During 1898.	During 1899.	During 1900.	During 1901.	During 1902.	During 1903.	During 1904.	During 1905.	
Athens	10	...	28	23	10	20	13	27	30	29	37	35	262
Belmont	6	...	8	17	10	6	13	15	17	27	36	35	190
Carroll .....	...	2	5	...	6	2	2	2	6	7	7	11	50
Columbiana	12	1	8	23	6	3	9	16	17	18	11	15	139
Coshocton .....	...	...	3	5	4	1	4	7	5	8	7	10	54
Gallia .....	...	...	...	1	...	...	...	...	1	...	2	1	5
Guernsey	2	...	4	7	1	10	13	12	13	17	21	21	121
Harrison .....	...	...	...	1	1	...	...	...	3	3	4	5	17
Holmes .....	...	...	...	...	...	...	...	...	...	1	1	...	2
Hocking	1	3	12	8	3	5	2	13	10	6	15	18	96
Jackson	1	...	8	15	22	17	17	36	26	35	37	36	250
Jefferson	2	...	7	10	1	11	10	13	22	24	30	47	177
Lawrence	3	...	4	2	2	...	7	2	2	4	9	10	45
Mahoning	4	...	13	7	2	4	...	4	3	2	3	2	44
Medina	1	2	5	1	3	3	6	2	7	3	5	4	42
Meigs	6	...	8	6	...	...	5	12	5	5	10	9	66
Morgan .....	...	...	1	1	...	1	...	2	1	2	1	1	10
Monroe .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Muskingum .....	...	...	4	6	7	6	6	6	5	3	4	9	56
Noble .....	...	1	...	...	1	...	...	1	1	1	2	2	9
Ottawa .....	...	...	...	...	...	...	...	...	...	...	...	1	1
Perry	10	...	17	18	13	35	20	30	39	36	29	39	286
Portage .....	...	...	4	...	1	4	3	3	3	3	2	3	26
Scioto .....	...	...	...	1	1	...	...	1	...	...	...	2	5
Stark	7	...	21	11	15	10	21	20	22	30	29	26	212
Summit	3	1	7	2	...	1	1	2	1	1	3	5	27
Trumbull	10	1	10	2	...	...	...	...	1	1	...	...	25
Tuscarawas	1	1	10	6	7	10	20	29	20	19	27	22	172
Vinton	2	...	...	2	...	1	2	2	4	6	5	6	30
Washington .....	...	...	...	...	...	...	1	...	...	...	...	...	1
Wayne	1	...	1	3	3	2	2	2	3	2	4	7	30
Total	82	12	188	178	119	152	177	259	267	293	341	382	2,450

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APPOINTMENTS.

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APPOINTMENTS SINCE THE CREATION OF THE DEPARTMENT.

Name of Inspector.	County.	Governor by whom appointed.	Term began.	Term expired.	Time served.	Remarks.
<i>Chief Inspectors.</i>						
Andrew Roy, D.....	Trumbull	Wm. Allen, D.....	April 6, 1874	April 6, 1878	4 years	Resigned.
Jas. D. Poston, D.....	Hocking	R. M. Bishop, D.....	April 6, 1878	Nov. 15, 1879	1 yr. 7 mo..	Not confirmed by Senate.
David Owens, D.....	Trumbull	R. M. Bishop, D.....	Nov. 16, 1879	Feb. 12, 1880	3 months ...	Resigned.
Andrew Roy, R.....	Jackson	Chas. Foster, R.....	Feb. 12, 1880	Feb. 16, 1884	4 years	Reappointed.
Thos. B. Bancroft, D...	Gallia	Geo. Hoadley, D.....	Feb. 16, 1884	Apr. 1, 1888	4 yrs. 1 $\frac{1}{2}$ mo.	Reappointed.
Robt. M. Haseltine, R..	Mahoning	Joseph B. Foraker, R.	April 1, 1888	Apr. 30, 1892	1 month	Reappointed.
Robt. M. Haseltine, R..	Mahoning	Joseph B. Foraker, R.	May 1, 1888	Apr. 30, 1892	4 years	Reappointed.
Robt. M. Haseltine, R..	Mahoning	Wm. McKinley, Jr., R.	May 1, 1892	Apr. 30, 1896	4 years	Resigned.
Robt. M. Haseltine, R..	Mahoning	Asa S. Bushnell, R...	May 1, 1896	Apr. 30, 1900	4 years	Incumbent.
Elmer G. Biddison, R..	Athens	George K. Nash, R...	May 1, 1900	Apr. 30, 1904	4 years	
George Harrison, R....	Jackson	Myron T. Herrick, R.	May 1, 1904	Apr. 30, 1908	.....
<i>District Inspectors.</i>						
Jacob J. Klein, R.....	Stark	Chas. Foster, R.....	June 4, 1881	Jan. 26, 1883	2 yrs. 7 $\frac{1}{2}$ mo.	Resigned.
John P. Williams, R...	Trumbull	Chas. Foster, R.....	Jan. 26, 1883	Feb. 16, 1884	1 yr. 21 dys..	Resigned.
Austin P. King, Jr., D.	Columbiana ..	Geo. Hoadley, D.....	Feb. 16, 1884	Apr. 30, 1886	2 yrs. 2 $\frac{1}{2}$ mo.	Resigned, held over as no appointment was made at expiration of term, May 1, 1887.
Wm. Dalrymple, D.....	Athens	Geo. Hoadley, D.....	May 1, 1884	Mar. 1, 1888	3 yrs. 10 mo.	Resigned.
Wm. A. Davis, D.....	Guernsey	Geo. Hoadley, D.....	May 1, 1884	Feb. 15, 1886	1 yr. 9 $\frac{1}{2}$ mo..	Resigned.
Joseph L. Morris, R...	Coshocton	Joseph B. Foraker, R.	Feb. 15, 1886	June 1, 1889	3 yrs. 2 $\frac{1}{2}$ mo.	Resigned.
D. J. Harry, R.....	Jackson	Joseph B. Foraker, R.	April 1, 1888	Apr. 30, 1888	1 month	Reappointed.
D. J. Harry, R.....	Jackson	Joseph B. Foraker, R.	May 1, 1888	Apr. 30, 1891	3 years	
David E. Evans, R....	Meigs	Joseph B. Foraker, R.	May 1, 1888	Apr. 30, 1891	3 years	
Jas. W. Haughee, R....	Athens	Joseph B. Foraker, R.	May 1, 1888	Apr. 30, 1891	3 years	
Robert Bell, R.....	Stark	Joseph B. Foraker, R.	May 8, 1886	Apr. 30, 1887	11 mos. 23 d.	Reappointed.
Robert Bell, R.....	Stark	Joseph B. Foraker, R.	May 1, 1887	Apr. 30, 1888	1 year	Reappointed.

Robert Bell, R.....	Stark	Joseph B. Foraker, R.....	May 1, 1888	Aug. 30, 1890	2 y. 8 m. 11 d	Resigned.
Ebenezer Lewis, D.....	Summit	Jas. E. Campbell, D.....	Aug. 11, 1890	Apr. 30, 1891	8 mo. 20 d...	Reappointed.
Ebenezer Lewis, D.....	Summit	Jas. E. Campbell, D.....	May 1, 1891	Apr. 30, 1894	3 years	Reappointed.
Thos. H. Love, R.....	Carroll	Joseph B. Foraker, R.....	June 1, 1891	Aug. 1, 1891	2 yrs. 2 mo...	Reappointed.
Thos. H. Love, R.....	Carroll	Wm. McKinley, Jr., R.....	July 15, 1892	Apr. 30, 1894	1 y. 9 m. 15 d	Reappointed.
Thos. H. Love, R.....	Carroll	Wm. McKinley, Jr., R.....	July 15, 1892	Apr. 30, 1894	3 yrs. 9 $\frac{1}{2}$ mo.	Resigned.
Wm. B. Rennie, D.....	Tuscarawas	Jas. E. Campbell, D.....	Aug. 1, 1891	Feb. 15, 1898	11 mo. 15 d...	Resigned.
Jno. E. Short, D.....	Hocking	Jas. E. Campbell, D.....	May 1, 1891	July 15, 1892	3 yrs. 7 days.	Resigned.
Adam P. McDonald, D.....	Perry	Jas. E. Campbell, D.....	May 1, 1891	May 15, 1892	1 yr. 2 $\frac{1}{2}$ mo...	Resigned.
Wm. H. Turner, D.....	Guernsey	Jas. E. Campbell, D.....	May 1, 1891	Apr. 30, 1894	3 years	To take effect July 15, before entering upon his duties.
Jas. W. Haughee, R.....	Athens	Wm. McKinley, R.....	June 17, 1892	June 28, 1892	Apptd., resg.	
Robt. H. Miller, R.....	Perry	Wm. McKinley, R.....	July 15, 1892	Apr. 30, 1894	1 yr. 9 $\frac{1}{2}$ mos.	Reappointed.
Robt. H. Miller, R.....	Perry	Wm. McKinley, R.....	May 1, 1894	July 15, 1898	4 yrs. 2 $\frac{1}{2}$ mo.	Reappointed.
Alexander Beattie, R.....	Athens	Wm. McKinley, R.....	July 15, 1892	July 15, 1895	3 years	Reappointed.
Alexander Beattie, R.....	Athens	Wm. McKinley, R.....	July 15, 1892	July 15, 1898	3 years	Reappointed.
Jno. P. Jones, R.....	Stark	Wm. McKinley, R.....	July 15, 1892	July 15, 1895	3 years	Reappointed.
Jno. P. Jones, R.....	Stark	Wm. McKinley, R.....	July 15, 1892	Dec. 31, 1897	2 yrs. 5 $\frac{1}{2}$ mo.	Resigned.
Saml. Llewellyn, R.....	Jackson	Wm. McKinley, R.....	July 15, 1895	May 21, 1897	2 yrs. 12 da.	Reappointed.
Saml. Llewellyn, R.....	Jackson	Wm. McKinley, R.....	May 21, 1897	May 19, 1900	2 y 11 m 28 d	Reappointed.
Thos. McGough, R.....	Belmont	Wm. McKinley, R.....	May 1, 1894	Apr. 30, 1897	3 years	Reappointed.
Thos. McGough, R.....	Belmont	Wm. McKinley, R.....	May 1, 1897	June 1, 1900	3 yrs. 1 mo...	Reappointed.
Thos. McGough, R.....	Belmont	Geo. K. Nash, R.....	June 1, 1900	Apr. 30, 1903	2 yrs. 11 mo.	Reappointed.
Thos. McGough, R.....	Belmont	Geo. K. Nash, R.....	May 1, 1903	Apr. 30, 1906	3 years	Incumbent.
Rees T. Davis, R.....	Columbiana	Wm. McKinley, R.....	May 1, 1894	Apr. 30, 1897	3 years	Reappointed.
Wm. K. Moore, R.....	Columbiana	Wm. McKinley, R.....	May 1, 1897	May 31, 1900	3 yrs. 1 mo...	Reappointed.
Wm. K. Moore, R.....	Stark	Asa S. Bushnell, R.....	May 17, 1898	July 15, 1898	6 months	Reappointed.
Jas. P. Davis.....	Carroll	Asa S. Bushnell, R.....	Jan. 1, 1900	July 15, 1900	1 y 11 m 15 d	Resigned.
Jas. P. Davis.....	Carroll	Asa S. Bushnell, R.....	July 15, 1898	July 1, 1901	2 y 10 m 15 d	Reappointed.
Jas. P. Davis.....	Carroll	Geo. K. Nash, R.....	Feb. 15, 1898	Jan. 1, 1901	2 y 10 m 15 d	Reappointed.
Jas. P. Davis.....	Carroll	Geo. K. Nash, R.....	Jan. 1, 1901	Apr. 30, 1903	2 yrs. 4 mos.	Resigned.
L. W. Hull.....	Athens	Geo. K. Nash, R.....	May 1, 1903	Apr. 30, 1906	2 yrs. 7 mos.	Resigned.
David H. Williams.....	Athens	Asa S. Bushnell, R.....	July 15, 1898	July 15, 1899	1 year	Reappointed.
David H. Williams.....	Athens	Asa S. Bushnell, R.....	July 15, 1899	July 15, 1901	2 years	Reappointed.
David B. Wilson.....	Perry	Geo. K. Nash, R.....	July 15, 1901	July 15, 1904	3 years	Reappointed.
David B. Wilson.....	Perry	Geo. K. Nash, R.....	July 15, 1898	May 30, 1900	1 y 10 m 15 d	Reappointed.
R. M. Mason.....	Hocking	Geo. K. Nash, R.....	June 1, 1900	June 9, 1903	3 yrs. 9 days.	Resigned.
		Geo. K. Nash, R.....	May 19, 1900	Apr. 30, 1903	2 y 11 m 11 d	Reappointed.

APPOINTMENTS SINCE THE CREATION OF THE DEPARTMENT.—Concluded.

Name of Inspector.	County.	Governor by whom appointed.	Term began.	Term expired.	Time served.	Remarks.
<i>District Inspectors—</i> Concluded.						
R. M. Mason.....	Hocking	Geo. K. Nash, R.....	May 1, 1903	Aug. 15, 1903	3 mos. 15 da.	Resigned.
W. H. Turner.....	Guernsey	Geo. K. Nash, R.....	June 1, 1900	Apr. 30, 1903	2 yrs. 11 mo.	Reappointed.
W. H. Miller.....	Guernsey	Geo. K. Nash, R.....	May 1, 1903	Apr. 30, 1906	.....	Incumbent.
W. H. Miller.....	Stark	Geo. K. Nash, R.....	July 1, 1900	July 15, 1901	1 yr. 15 da. . .	Reappointed.
W. H. Miller.....	Stark	Geo. K. Nash, R.....	July 15, 1901	July 15, 1904	3 years	Reappointed.
Ino. Winefordner	Muskingum . .	Geo. K. Nash, R.....	June 9, 1903	Apr. 30, 1906	11 mo. 22 da. .	Resigned.
Ed. S. Smith.....	Hocking	Geo. K. Nash, R.....	Aug. 15, 1903	Apr. 30, 1906	9 mo. 16 da. .	Resigned.
Thos. Waters.....	Jackson	Myron T. Herrick, R. . .	June 1, 1904	Apr. 30, 1906	.....	Incumbent.
David H. Williams....	Athens	Myron T. Herrick, R. . .	July 16, 1904	July 15, 1907	9 mo. 29 da. .	Resigned.
Lucius Hull	Athens	Myron T. Herrick, R. . .	June 1, 1904	Apr. 30, 1906	6 mo. 22 da. .	Resigned.
W. H. Miller.....	Stark	Myron T. Herrick, R. . .	July 16, 1904	July 15, 1907	.....	Incumbent.
John T. Dolan.....	Hocking	Myron T. Herrick, R. . .	Jan. 24, 1905	Apr. 30, 1906	1 mo. 22 da. .	Resigned.
Jas. Fritchard	Perry	Myron T. Herrick, R. . .	Mar. 17, 1905	Apr. 30, 1906	.....	Incumbent.
J. L. McDonald.....	Athens	Myron T. Herrick, R. . .	May 16, 1905	July 15, 1907	.....	Incumbent.

PRODUCTION OF FIRE CLAY.

(185)

PRODUCTION OF FIRE CLAY FOR 1905.

The production of fire clay decreased in tonnage for the year 1905, 6,556 tons as compared with 1904, which practically keeps this industry in a normal condition.

The increase in 1904 over 1903 had been phenomenal as compared with former years, and it could not be expected that 1905 would show a material increase.

While the decrease in tonnage in this industry is a few thousand tons less, yet the number of men employed in the production of fire clay shows a decided gain of 113 men over the year 1904.

The production of clay in 1904 amounted to 2,045,848 tons, and in 1905, 2,039,292 tons, showing a loss of 6,556 tons.

In 1904, there were 1,147 persons engaged in the clay industry, while in 1905 this number increased to 1,260, a gain of 113 men.

The average number of days worked in 1905 was 276 days, based on eight hours per day. In making their returns to this Department, the various companies gave the actual days worked — eight, nine, and ten hours per day — and in order to give the actual number of days worked these figures were computed into an eight-hour workday.

The same counties producing clay in 1904 were producers in 1905, with the exception of Trumbull County, which was a non-producer in 1905, the tonnage in that county previous to that time having been only a few thousand tons.

In 1905, Coshocton and Harrison were clay producing counties for the first time. Coshocton starts out with only 412, and Harrison with 600 tons. Tuscarawas County, formerly the greatest producer, falls now to third place, with Summit County in the lead, and Jefferson County second. Stark County still retains fourth place, and the tonnage varies only 160 tons from 1904.

The table on page 187 will give the reader full details in regard to the men employed, number of days worked, also the tonnage produced in each county.

TABLE SHOWING THE PRODUCTION OF FIRE CLAY FOR THE YEAR 1905 AS COMPARED WITH 1904, AND THE NUMBER OF PERSONS EMPLOYED.

Counties.	Average Number Days Worked in 1904 on 8-Hour Basis.	Number of Men Employed in 1904.	Number of Tons Mined in 1904.	Average Number Days Worked in 1905 on 8-Hour Basis.	Number of Men Employed in 1905.	Number of Tons Mined in 1905.	Gain in Men.	Loss in men.	Gain in Tons.	Loss in Tons.
Athens	335	64	146,419	291	65	154,830	1	.....	8,411	.....
Carroll	240	86	133,563	257	101	143,964	15	.....	10,401	.....
Columbiana	213	84	165,459	210	90	134,925	6	.....	.....	30,534
Coshocton .....	.....	.....	.....	44	1	412	1	.....	412	.....
Guernsey	166	2	5,580	201	9	2,545	7	.....	.....	3,035
Harrison .....	.....	.....	.....	120	3	600	3	.....	600	.....
Hocking	279	46	118,455	336	83	176,389	37	.....	57,934	.....
Holmes	258	3	3,800	220	4	4,800	1	.....	1,000	.....
Jackson	125	14	9,373	213	18	12,792	4	.....	3,419	.....
Jefferson	216	161	358,555	252	158	306,825	.....	3	.....	51,730
Lawrence	91	30	23,321	116	39	27,912	9	.....	4,591	.....
Mahoning	90	5	3,660	79	9	2,500	4	.....	.....	1,160
Muskingum	176	27	46,288	226	28	51,179	1	21	4,891	.....
Perry	245	81	104,937	245	60	93,604	.....	.....	.....	11,333
Scioto	281	61	36,949	298	103	52,579	42	.....	15,660	.....
Stark	286	147	224,230	307	157	224,070	10	.....	.....	160
Summit	226	136	294,751	332	159	353,940	23	.....	59,189	.....
Trumbull	200	3	2,400	.....	.....	.....	3	.....	.....	2,400
Tuscarawas	266	192	363,936	301	169	286,688	23	.....	77,248	.....
Vinton	85	5	4,172	150	4	8,808	1	.....	4,636	.....
Totals .....	.....	1,147	2,045,848	.....	1,260	2,039,292	164	51	171,044	177,600

NOTE—

Total tons produced in 1904..... 2,045,848

Total tons produced in 1905..... 2,039,292

Net loss 6,556

Average days worked per man per year on eight-hour basis, 276 days. (Found by dividing 347,968 days by 1,260 men, which is 276 days, or a gain over 248 days in 1904 of 28 days.)

Total number of men employed in 1905..... 1,260

Total number of men employed in 1904..... 1,147

Net gain in men..... 113

TABLE SHOWING THE FIRE CLAY PRODUCTION OF THE STATE
FROM JANUARY 1, 1884, TO DECEMBER 31, 1905, INCLUSIVE.

Years.	Output Tons.	Gain.	Loss.
1884	168,208		
1885	153,756		14,453
1886	266,709	112,953	
1887	366,476	99,767	
1888	471,794	105,313	
1889	574,129	102,335	
1890	833,159	259,030	
1891	1,087,560	254,401	
1892	1,253,110	165,550	
1893	1,032,348		220,762
1894	942,913		89,435
1895	844,832		97,081
1896	827,450		17,382
1897	822,727		4,723
1898	1,026,922	204,195	
1899	1,173,697	146,775	
1900	1,473,088	299,391	
1901	1,337,181		135,907
1902	1,528,829	191,648	
1903	1,567,603	38,774	
1904	2,045,848	478,245	
1905	2,039,292		6,556

RODUCTION OF LIMESTONE.

(189)

LIMESTONE PRODUCTION FOR THE YEAR 1905.

The production of limestone for the year 1905 shows a decided gain in tonnage produced as compared with the year 1904. The number of employes increased from 3,976 in 1904 to 4,728 in 1905, a gain of 752 men.

The persons employed in the limestone industry found steadier employment in 1905 than in 1904, and this industry will no doubt keep on growing year by year, as the people demand better roads and nothing so far has given better service or results in macadamizing roadbeds than limestone.

The average number of days worked in 1905 was 245, as against 229 days in 1904. This shows an increase of 16 days. All days are based on eight hours, and while the various concerns interested in the production of limestone worked their men eight, nine or ten hours per day, this Department in order to strike uniformity in the hours worked per day has computed all days into eight-hour workdays.

In comparing the ten classifications of limestone in 1905 with 1904, we find that gains were made in seven and losses recorded in three. The greatest increase in the production of limestone is for macadamizing roadbeds, which shows that nearly twice as much stone was used for this purpose in 1905 than in 1904, or 1,400,301 tons more, the total tonnage in 1904 being only 1,586,865 tons, while in 1905 it was 2,987,166 tons.

It is gratifying to know that an effort is being made to improve the roadbeds of our state. The public is in favor of it, and the legislature has given its approval by making an appropriation of \$150,000 to be expended in improving our present roads, and no doubt limestone will be the principal material used.

The amount of limestone used for fluxing has also increased very materially in 1905 compared with 1904, the gain being 740,172 tons. This is another evidence that the demand for limestone is still on the increase.

This is the second year limestone is reported used for cement and concrete. In 1904 the amount of limestone used for this purpose was 54,130 tons, while in 1905 the amount used is reported 237,102 tons, or an increase of 182,972 tons. As concrete and cement will be extensively used in the future for bridges, sidewalks, cellar walls, culverts and ballasting railroad tracks, so will the production of limestone increase.

Losses are recorded in the use of limestone for ordinary building stone, piers and protection purposes and for paving and curbing, the greatest loss being in paving.

As the production of limestone increases with the future, so will it become incumbent on this Department to give this industry closer attention than it has received in the past.

TABLE SHOWING THE PRODUCTION OF LIMESTONE IN OHIO, DURING THE YEAR 1905, THE NUMBER OF PERSONS EMPLOYED AND AVERAGE NUMBER OF DAYS WORKED ON AN EIGHT-HOUR BASIS.

Counties.	Number of Days Worked.	Number of Men Employed.	Number Tons Burned for Lime.	Number Tons Burned for Fluxing.	Cubic Feet Dimension Stone.	Cubic Yards Ordinary Building Stone.	Cubic Yards for Piers and Protection Purposes.	Square Feet Flagging.	Square Feet Paving.	Lineal Feet Curbing.	Cubic Yards for Cement and Concrete.	Cubic Yards for Ballast and Macadam.
Adams	113	24	10	.....	.....	984	7,800	12,000	20,000	.....	.....	19,280
Allen	161	152	.....	.....	.....	5,970	.....	.....	.....	.....	.....	97,593
Butler	168	22	.....	.....	.....	4,433	10	.....	.....	.....	.....	6,784
Clark	308	174	52,932	50,710	9,574	13,927	1,213	772	.....	.....	.....	42,467
Clermont	12	21	.....	.....	.....	48	.....	.....	.....	.....	.....	968
Clinton	.....	39	.....	.....	.....	1,750	.....	.....	.....	.....	200	7,834
Columbiana	90	3	100	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crawford	120	61	164	.....	.....	234	.....	.....	.....	.....	.....	40,533
Delaware	365	55	22,202	.....	10,250	13,657	.....	350	.....	.....	.....	6,132
Erie	366	415	201,618	120,136	.....	14,509	56,187	17,000	.....	300	.....	32,787
Franklin	372	651	.....	726,941	5,616	41,135	463	4,000	2,000	1,600	52,851	365,871
Greene	230	74	3,815	.....	.....	8,020	.....	300	.....	500	.....	4,100
Hamilton	243	62	568	.....	.....	18,282	.....	.....	.....	.....	.....	39,293
Hancock	196	84	.....	.....	.....	1,175	1,200	.....	.....	5,800	.....	74,400
Hardin	334	160	3,300	.....	.....	.....	.....	.....	.....	.....	.....	327,000
Highland	180	50	24,000	.....	1,000	6,967	700	500	600	300	.....	13,539
Jackson	21	17	.....	673	.....	.....	.....	.....	.....	.....	.....	500
Logan	240	63	30	11	.....	3,382	150	200	600	400	.....	25,403
Lucas	278	66	.....	20,000	2,000	2,482	.....	.....	.....	.....	.....	509,626
Lawrence	246	153	.....	94,675	.....	.....	.....	.....	.....	.....	36,865	6,013
Marion	360	495	148,727	126,170	.....	27,677	.....	1,870	.....	.....	.....	163,252
Miami	306	140	2,000	1,200	14,500	19,378	1,915	7,000	.....	4,869	300	42,200
Montgomery	243	63	5,130	.....	21,800	11,748	.....	365	.....	.....	.....	23,038

TABLE SHOWING THE PRODUCTION OF LIMESTONE, ETC.—Concluded.

Counties	Number of Days Worked	Number of Men Employed	Number of Tons Burned for Lime	Number of Tons Burned for Fluxing	Cubic Feet Dimension Stone	Cubic Yards Ordinary Building Stone	Cubic Yards for Piers and Protection Purposes	Square Feet Flagging	Square Feet Paving	Lineal Feet Curbing	Cubic Yards for Cement and Concrete	Cubic Yards for Ballast and Macadam
Mercer	100	7	955									600
Ottawa	361	603	136,717	994,869	891,489	550	2,767					176,153
Pickaway	62	1										
Panhandling	250	36				50,000						50,000
Preble	199	107	31,647		5,300	5,128						43,826
Putnam	181	85				4,364	200	2,000			500	62,325
Ross	313	40	500	60	3,500	2,300		41	12,800	1,000		12,951
Sandusky	302	177	42,767		324	8,332	6					117,058
Scioto	293	41		1,074								
Stark	276	25	3,884								46,681	2,000
Seneca	253	143	28,300	200		31,147			403		49,435	214,877
Van Wert	170	129				1,789	4,625					312,958
Vinton	300	50									50,000	750
Wood	248	240	29,837	262	2,349	1,100					270	145,055
Total		4,728	740,203	2,143,001	937,702	300,368	77,236	46,398	36,403	14,769	237,102	2,987,166

NOTE: Average days, 245. (i. e. 1,158,360 days by 4,728 men is 245).
Average number of days is based on eight-hour days.

TABLE SHOWING THE COMPARATIVE GAINS AND LOSSES IN THE VARIOUS CLASSIFICATIONS OF LIMESTONE PRODUCTION FOR 1905 AS COMPARED WITH 1904.

Counties.	Number of Days Worked.	Number of Men Employed.	Number Tons 2,000 Pounds Each Burned for Lime.	Number Tons 2,000 Pounds Each Burned for Fluxing.	Number Cubic Feet Dimension Stone.	Number Cubic Yards Ordinary Building Stone.	Number Cubic Yards for Piers and Protection Purposes.	Square Feet Flagging.	Square Feet Paving.	Linear Feet Curbing.	Cubic Yards for Cement and Concrete.	Cubic Yards for Ballast and Macadam.
1905	245	4,728	740,203	2,143,001	937,702	300,368	77,236	46,398	36,403	14,769	237,102	2,987,166
1904	229	3,976	604,979	1,402,829	102,044	323,209	148,497	44,638	146,934	20,363	54,130	1,586,865
Gain	16	752	135,224	740,172	835,658	22,841	71,261	1,760	110,531	5,594	182,972	1,400,301
Loss												

TABLE SHOWING THE COMPARATIVE PRODUCTION OF LIMESTONE IN OHIO FROM 1886 TO 1905, INCLUSIVE.

Years.	Average Number Days Worked.	Number of Men Employed.	Number Tons of 2,000 Pounds Each Burned for Lime.	Number Tons of 2,000 Pounds Each Burned for Fluxing.	Cubic Feet of Dimension Stone.	Cubic Yards of Ordinary Building Stone.	Cubic Yards for Piers and Protection Purposes.	Square Feet of Flagging.	Square Feet of Paving.	Lineal Feet of Curbing.	Cubic Yards of Ballast and Macadam.	Cubic Yards for Cement and Concrete.
1886	140	2,383	517,270	828,080	566,697	295,231	63,050	187,900	154,036	60,650	186,810	.....
1887	182	2,707	619,027	478,074	960,393	385,247	78,082	350,054	289,195	139,174	416,008	.....
1888	165	3,025	602,074	666,481	1,706,038	.....	78,381	580,901	313,555	206,227	446,770	.....
1889	165	2,631	840,442	235,298	898,886	364,085	69,876	413,400	536,361	300,339	354,544	.....
1890	171	2,445	680,827	303,621	833,077	270,367	81,414	673,850	507,813	165,434	482,650	.....
1891	143	8,238	744,946	294,478	634,901	361,637	65,295	417,855	4,948,309	300,755	623,194	.....
1892	132	8,323	631,949	217,081	1,027,157	323,030	48,102	171,567	2,583,308	101,820	704,784	.....
1893	149	2,929	396,690	108,376	748,712	260,014	57,374	226,054	302,883	309,327	707,142	.....
1894	138	2,454	349,631	240,173	1,393,792	181,722	22,839	206,738	312,868	144,042	435,704	.....
1895	127	8,839	1,175,988	459,632	600,643	263,900	48,475	573,634	640,806	152,873	650,217	.....
1896	132	3,186	397,162	623,544	200,289	215,909	29,114	137,679	163,872	71,236	533,329	.....
1897	131	3,308	481,871	320,437	371,741	248,302	97,548	145,831	113,025	56,168	689,044	.....
1898	132	3,149	624,921	571,029	696,173	308,343	47,762	71,006	43,566	52,940	729,896	.....
1899	142	3,165	628,274	791,701	406,112	394,640	87,099	101,133	81,796	67,091	864,349	.....
1900	141	3,680	547,046	882,436	166,276	274,919	129,294	131,837	64,170	40,550	1,308,416	.....
1901	154	4,135	554,323	1,419,087	318,995	304,312	134,784	103,177	48,512	37,828	1,551,878	.....
1902	181	3,946	652,890	1,489,074	93,180	273,140	108,074	65,994	42,307	25,321	1,886,104	.....
1903	167	3,843	548,068	1,501,038	106,861	286,683	88,114	44,330	294,648	19,736	1,721,687	.....
1904	229	3,976	604,979	1,402,829	102,044	323,299	148,497	44,638	146,334	20,863	1,686,895	.....
1905	245	4,728	740,303	2,143,001	697,792	300,398	77,236	46,398	26,493	14,769	2,087,166	.....
Gain over 1886	16	732	135,324	740,172	885,658	.....	.....	1,700	.....	.....	1,400,301	182,972
Loss from 1886	.....	.....	.....	.....	.....	82,841	71,391	.....	119,331	5,594	.....	.....

PRODUCTION OF IRON ORE.

(195)

TABLE SHOWING THE PRODUCTION OF IRON ORE, BY COUNTIES,
DURING THE YEARS 1904 AND 1905, AND THE LOSS AND GAIN
IN EACH COUNTY.

Counties.	1904.	1905.	Gain.	Loss.
Jackson	9,825			9,825
Lawrence	1,178	4,395	3,217	
Scioto	9,649	9,666	17	
Vinton		146	146	
Total	20,652	14,207	3,380	9,825

NOTE.

Net Loss 6,445

If the returns received by this Department are any indication of what the future may develop, Ohio will soon cease to be an Iron Ore producing state except in quantities of little or no consequence.

Only three counties reported production of Iron Ore, and the tonnage amounts to only 14,207 tons, showing a decrease of 6,445 tons as compared with the preceding year, 1904.

Jackson County failed to make any returns of Iron Ore produced for the year, and this accounts for the great decrease shown. Vinton County is added to the list of Iron Ore producing counties although its tonnage amounted to only 146 tons.

While the Iron Ore production of Ohio is steadily decreasing, yet the iron industry of the country during the year has been one of activity and the trade has been exceptionally good. Other states are rapidly gaining in the production of Iron Ore by reason of their ability to mine an ore of superior quality and the unlimited quantity of their extensive ore deposits. Shipping facilities also enter as a very important factor in this industry, other states surpassing Ohio in this respect. All these conditions tend to give other localities advantages which Ohio does not enjoy, and it is more profitable to import this product rather than to mine it.

TABLE SHOWING THE IRON ORE PRODUCTION OF THE STATE
FROM 1884 TO 1905, INCLUSIVE.

Years.	Blackband.			Hematite.			Total.
	Output Tons.	Loss.	Gain.	Output Tons.	Loss.	Gain.	
1884							276,286
1885	70,931			188,646			259,577
1886	83,947		13,012	260,537		71,891	344,484
1887	87,965		4,018	289,500		28,963	377,465
1888	82,054	5,911		17,298	118,202		253,352
1889	70,398	11,656		182,011		10,713	252,409
1890	41,848	28,550		127,240	54,771		169,088
1891	15,540	26,308		52,444	74,796		67,984
1892	8,680	6,860		81,042		28,598	89,722
1893	3,837	4,843		64,423	16,619		68,260
1894		3,837		58,043	6,380		58,043
1895				93,051		35,008	93,051
1896				70,765	22,286		70,765
1897				50,267	20,498		50,267
1898				51,659		1,392	51,659
1899				25,359	16,800		25,359
1900				52,266		26,907	52,266
1901				41,325	10,941		41,325
1902				10,681	30,644		10,681
1903				12,995		2,314	12,995
1904				20,652		7,657	20,652
1905				14,207	6,445		14,207

PRODUCTION OF GYPSUM.

(199)

TABLE SHOWING THE NUMBER OF TONS OF GYPSUM PRODUCED,
NUMBER OF EMPLOYEES AND DAYS WORKED, DURING THE
YEAR 1905.

Ottawa County.	Number of Tons.	Number of Em- ployes.	Number of Days Worked.
U. S. Gypsum Co.....	82,657	105	291
Consumers Gypsum Co.....	30,000	40	300
Total	112,657	145	591

NOTE.

Average days worked..... 293

This Department for the first time records the production of Gypsum. This mineral is principally used in the manufacture of Wall Plaster and Plaster Paris. Only two Companies have made returns to this Department as being engaged in the production of Gypsum.

DISTRICTS AND DISTRICT MINE
INSPECTORS.

201)

INSPECTORS AND DISTRICTS INTO WHICH THE
STATE IS DIVIDED, 1905.

GEO. HARRISON,

Chief Inspector of Mines, Wellston, Ohio.

FIRST DISTRICT.

Composed of the Counties of Jackson, Lawrence, Scioto, Vinton and Gallia

THOS. WATERS, *Inspector*,

Wellston, Jackson County, Ohio.

SECOND DISTRICT.

Composed of the counties of Athens, Meigs, Washington and portion of Noble.

JNO. L. McDONALD, *Inspector*,

Glouster, Athens County, Ohio.

THIRD DISTRICT.

Composed of the Counties of Hocking, Perry, Muskingum and Morgan.

JAMES PRITCHARD, *Inspector*,

Hemlock, Perry County, Ohio.

FOURTH DISTRICT.

Composed of the counties of Monroe, Belmont, Harrison and a portion of Jefferson.

THOS. MCGOUGH, *Inspector*,

Bridgeport, Belmont County, Ohio.

FIFTH DISTRICT.

Composed of the counties of Guernsey, Coshocton, Tuscarawas and a portion of Noble.

W. H. TURNER, *Inspector*,

Cambridge, Guernsey County, Ohio.

SIXTH DISTRICT.

Composed of the counties of Carroll, Columbiana, Mahoning, Trumbull, and a portion of Jefferson.

JAS. P. DAVIS, *Inspector*,

Salem, Columbiana County, Ohio.

SEVENTH DISTRICT.

Composed of the counties of Medina, Stark, Summit, Wayne, Holmes, Portage and Ottawa.

W. H. MILLER, *Inspector*,

R. D. No. 1, Massillon, Stark County, Ohio.

INSPECTIONS.

(208)

TABLE SHOWING THE NUMBER OF VISITS OF MINES MADE BY THE CHIEF INSPECTOR AND DISTRICT INSPECTORS IN THE VARIOUS COUNTIES AND DISTRICTS OF THE STATE FROM JANUARY 1, 1905, TO DECEMBER 31, 1905, INCLUSIVE.

Counties.	Waters.	Williams.	McDonald.	Dolan.	Pritchard.	McGough.	Turner.	Davis.	Miller.	Chief Inspector George Harrison.	Total.
	1st Dist.	2nd Dist.		3rd Dist.		4th Dist.	5th Dist.	6th Dist.	7th Dist.		
Athens		63	120	1	2					3	180
Belmont						156	7	2		10	175
Carroll							1	44			45
Columbiana								45			45
Coshocton							20				20
Gallia	3	2	1								6
Guernsey						6	76			11	93
Harrison						18					18
Hocking			1	6	32					2	41
Holmes									11		11
Jackson	150									14	164
Jefferson						80	6	96	4	7	192
Lawrence	46									1	47
Mahoning								13			13
Medina									21		21
Meigs		12	28							2	42
Muskingum					33		37			6	76
Morgan					5					1	11
Noble							7			1	8
Ottawa									14		14
Perry		2	1	1	109		27			13	153
Portage								1	14		15
Scioto	2										2
Stark									150	4	154
Summit									26		26
Trumbull								2			2
Tuscarawas							65	4	1		70
Vinton	27										27
Washington											
Wayne									28		28
Totals	228	79	151	8	181	260	250	207	269	75	1,708

In all, 1,708 visits were made during the year, 1,633 by the District Inspectors and 75 by the Chief Inspector. The resignation of four District Inspectors during the year necessarily disarranged the work of the Department to a certain extent, as it takes some time for a new Inspector to familiarize himself with the duties connected with the office and become acquainted with the territory under his direct charge, as well as the management in charge of the mines in his district. While the field work suffered no doubt to some extent owing to the changes already noted, and the number of visits show a decrease, we are firmly of the belief that the quality of the work accomplished has been far ahead of that of the previous year, from the fact that the inspections have been more complete, the improvements noted greater, and the ventilation of the mines at the close of the year show a marked improvement in every particular.

REPORTS OF INSPECTORS

FIRST DISTRICT.

THOS. WATERS,

JACKSON, LAWRENCE, SCIOTO, VINTON AND GALLIA
COUNTIES.

(205)

WELLSTON, OHIO, December 31, 1905.

HON. GEO. HARRISON, *Chief Inspector of Mines, Columbus, Ohio:*

DEAR SIR:—In compliance with the custom of the State Mining Department, I herewith submit my second annual report of visits to the various mines located in the First Mining District, from January 1, 1905, to December 31, 1905, inclusive.

Work has been very poor in this district. A great number of the mines were idle the greater part of the year. I regret very much to report twelve fatal accidents, nine being in Jackson and three in Lawrence County.

During the time embraced in this report, I was called upon to test eleven sets of scales, nine of which were located in Jackson and two in Vinton County.

I desire to extend to you many thanks for the courtesies and valuable advice rendered in the discharge of my duties.

Respectfully submitted,

THOMAS WATERS,

Inspector First District.

SCIOTO COUNTY.

YEALEY.

Located at Scioto Furnace, transportation B. & O. S. W. R. R. Operated by Buckeye Fire Brick and Clay Co., Scioto Furnace, Ohio. E. P. Stevens, Scioto Furnace, is Superintendent, and A. C. Pyler, same place, Mine Boss. Drift opening into seam of fire clay, which is about 3 feet thick. Worked on single entry. Natural ventilation. Seven miners and 2 day men are employed. One inspection was made and condition was fair. Suggested that furnace be built, as mine cannot be kept in proper condition without one.

EIFORT.

Located at Eifort, O., on B. & O. S. W. R. R. Operated by Morgan & Horton, Eifort, O. Wm. Horton, Eifort, O., is Superintendent, and E. D. Queen, Eifort, O., is Mine Boss. Drift, into a seam of lime which is about 7 feet thick. Both coal and lime are produced in this mine. Worked on single entry system. Natural ventilation. Thirty miners and 16 day men are employed. One inspection made and ventilation found deficient. Management was requested to put in a furnace.

GALLIA COUNTY.

SWAN CREEK.

Located at Bladen, Ohio, on the Ohio River. Operated by the Swan Creek Coal Co., Gallipolis, Ohio. Drift opening into a seam of coal about 3 feet thick. Worked on double entry system and has furnace ventilation. Seventeen miners and 5 day men are employed. December 6, mine was found in bad condition. Management was given six days to place mine in condition to comply with the mining laws. December 15, mine was found in an improved condition. The airway had been cleaned out and a stack had been built to the furnace. Adam Miller, Bladen, Ohio, has entire supervision.

BLACK DIAMOND.

Located at Gallia Furnace, transportation C. H. & D. R. R. Operated by Black Diamond Coal Co., Gallia, O. J. S. Davis, Gallia, O., is Superintendent, and Wm. Trainer of same place is Mine Boss. Drift into No. 6 seam of coal, which is 3 feet thick. Worked on double entry

system. Furnace ventilation. Twelve miners and 3 day men are employed. One inspection was made and mine found in fair condition.

JACKSON COUNTY.

LINDEMAN.

Located at Ridgeland, transportation C. H. & D. R. R. Operated by Lindeman Coal Co., Wellston, O. L. W. Lindeman, Wellston, has entire supervision. Drift opening into No. 4 seam, which is 4 feet thick. Double entry system, natural ventilation. Twelve miners and 3 day men are employed. One inspection was made and the condition was fair.

SYMMS CREEK.

Located at Madison Furnace, transportation C. H. & D. R. R. Operated by Symms Creek Coal Co., Rempel, O. Enos Miller, Wellston, Ohio, is both Superintendent and Mine Boss. Drift, No. 5 seam of coal, 30 inches thick. Worked on single entry. Furnace ventilation. Nine miners and three day men are employed. One inspection made and mine found in fair condition. The coal is mined by electric machines of the Morgan-Gardner type.

BLOOMFIELD.

Located at Ridgeland, O., transportation C. H. & D. R. R. Operated by Bloomfield Coal Co., Ridgeland, O. Geo. Eagle, Ridgeland, Ohio, is Superintendent. S. G. Anderson of same place, Mine Boss. Worked on double entry system. Furnace ventilation. Eighteen miners and 6 day hands are employed. Drift, No. 4 seam of coal, which is 4 feet thick. One inspection was made and mine found in fair condition.

KELLER.

Located near Lincoln, transportation D. S. R. R. Operated by Keller Coal Co., Jackson, O. Geo. Keller, Jackson, O., is Superintendent. Thos. Hughes, same place, Mine Boss. Drift into No. 4 seam of coal, which is 4 feet thick. Double entry. Ventilated by open fire. Nine miners and 5 day men are employed. One inspection was made and mine found in bad condition. Mine Boss was ordered to close the mine until mining laws were complied with.

OHIO PORTLAND CEMENT, NO. 5.

Located east of Wellston on D. S. R. R. Operated by the Ohio Portland Cement Co., Wellston, O. Lew Barnes, of Wellston, is Superintendent, and Willard Walton, Wellston, Mine Boss. Drift into the No. 5 seam of coal, which is 3 feet thick. Worked on double entry plan. Furnace ventilation. Twenty-four miners and 9 day men are employed. One inspection was made and mine found in fair condition.

OHIO PORTLAND CEMENT, NO. 4.

Located near Wellston, transportation D. S. R. R. Operated by Ohio Portland Cement Co., of Wellston, O. Lew Barnes, Superintendent, Willard Walton, Mine Boss. Drift into the No. 4 seam, which is 4 feet thick. Worked on double entry system. Furnace ventilation. Ten miners and 3 day men are employed. One inspection was made and mine found in fair condition. There was but one opening, and orders were given to work but 10 men until second opening was made.

SEE KAY.

Located on Price Switch. Operated by See Kay Coal Co., Glen Roy, O. Geo. Davis, Wellston, O., is Superintendent, W. DeWitt, Glen Roy, O., Mine Boss. Drift opening, penetrating No. 2 seam of coal, which is here about 30 inches thick. Worked on double entry system, has fan ventilation. Twenty-five miners and 4 day men are employed. One inspection was made and mine found in first-class condition.

DAISY.

Located on Armstrong Switch, transportation D. S. R. R. Operated by the Daisy Coal Co., Coalton, O. D. S. Goodrich, Coalton, O., is Superintendent, and O. R. West, of same place, is Mine Boss. Drift opening into the No. 2 seam of coal, which is 3 feet thick. Worked on single entry system and has natural ventilation. Five miners and 1 day hand are employed. One inspection was made during the year.

CHAPMAN.

Located at Chapman, O., on D. S. R. R. Operated by Chapman Coal Co., Jackson, O. J. E. Hayes, Chapman, O., is Superintendent, and Jacob Houser, same place, Mine Boss. Drift, into No. 2 seam of coal, which is 30 inches thick. Worked on single entry system. Fan ventilation. Thirty-five miners and 20 day men are employed. One inspection made and mine found in good condition.

WILLS.

Located near Coalton, O., on the C. H. & D. R. R. Operated by the Wills Coal Co., Coalton, O. Richard Wills, Coalton, is Superintendent, W. E. Hill, same place, Mine Boss. Drift, into the No. 1 seam, which is $3\frac{1}{2}$ feet thick. Worked on single entry system. Furnace ventilation. Seven miners and 3 day hands are employed. One inspection made during the year and mine found in good condition.

ZAGELMEYER.

Located near Lincoln Furnace, transportation D. S. R. R. Operated by Zagelmeyer Coal Co., West Bay City, Mich. O. S. Callahan, of Wellston, has entire supervision. Drift, into No. 4 seam of coal, which is 4 feet thick. Worked on double entry system. Fan ventilation. Thirty-seven miners and 15 day men are employed. September 25th this mine was visited and found idle, and no inspection was made. December 20th, mine inspected and found in first-class condition. Tested scales December 20th, and found them incorrect. Jeffrey Electric machines are used to mine the coal.

HOLBERG.

Located near Jackson. Operated by Henry Holberg, Jackson, Ohio. Henry Holberg is Superintendent and Al. Howe, Jackson, Mine Boss. Drift, into the No. 2 seam of coal, which is 30 inches thick. Worked on single entry plan and has furnace ventilation. Twelve miners and 3 day hands are employed. One inspection made during the year, and mine found in good condition.

ARMSTRONG.

Located at Armstrong Switch. Transportation D. S. R. R. Operated by the Armstrong Coal Co., Jackson, O. John Armstrong, Jackson, Ohio, is Superintendent, and Sherman Walker, Coalton, Mine Boss. Slope, 60 feet long, penetrating No. 2 seam of coal, which is here 30 inches thick. Worked on single entry system. Fan ventilation. Fourteen miners and 6 day hands are employed. One inspection made and mine found in first-class condition.

COMMERCIAL.

Located near Madison Furnace. Transportation C. H. & D. R. R. Operated by Commercial Coal Co., Jackson, Ohio. L. S. Hinkle, Jackson, is Superintendent, and C. E. Wiseman, Rempel, Mine Boss. Drift, into No. 5 seam of coal, which is 30 inches thick. Worked on single

entry system. Furnace ventilation. Nine miners and 2 day men are employed. One inspection was made and mine found in good condition.

LIMESTONE.

Located near Madison Furnace. Transportation C. H. & D. R. R. Operated by McKittrick Coal Co., Jackson, O. Thos. Evans, Rempel, Ohio, has entire supervision. Drift, into No. 4 seam of coal, which is 4 feet thick. Worked on single entry system. Furnace ventilation. Seven miners and 2 day men are employed. One inspection made and mine found in good condition. The coal is mined by Electric machines.

TIBBAL.

Located on D. S. R. R. Operated by Tibbals Coal Co., Jackson, Ohio. C. E. Tibbal, Jackson, Ohio, is Superintendent, W. M. Colley, Jackson, Mine Foreman. Drift opening, into No. 1 seam of coal, which is three and one-half feet thick. Worked on double entry system, and has furnace ventilation. Twenty-six miners and 7 day men are employed. One inspection was made and mine found in fair condition.

WOODS.

Located on D. S. R. R. Operated by Woods Coal Co., Jackson, O. Drift opening, into No. 1 seam of coal, which is three and one-half feet thick. Worked on single entry system. Furnace ventilation. Eight miners and 3 day men are employed. This mine was visited and found idle, and no inspection was made. N. B. Woods, of Jackson, O., has entire supervision.

MADDOX NO. 1.

Located on Springfield Switch. Transportation D. S. R. R. Operated by Maddox Coal Co., Coalton, O. John Maddox, Coalton, Ohio, is Superintendent, A. S. Maddox, same place, Mine Boss. Drift opening, into No. 2 seam, which is 28 inches in thickness. Worked on single entry system, and is ventilated by means of a basket. Seven miners and 2 day men employed. One inspection made and mine found in fair condition.

MADDOX NO. 2.

Located near Coalton, Ohio, on Ada Switch. Transportation D. S. R. R. Operated by the Maddox Coal Co., Coalton, O. John Maddox, Coalton, Ohio, is Superintendent, and A. I. Maddox, same place, is Mine Foreman. Drift opening into the No. 3 seam of coal, which is 2 feet thick. Worked on single entry system and is ventilated by basket. Ten miners and 2 day men are employed. Two inspections made during the year, and general conditions of mine were fair. August 29th ventila-

tion was found deficient. Requested that furnace be built and second opening made before they employed more men.

LUCY.

Located on Springfield Switch. Transportation D. S. R. R. Operated by Lucy Coal Co., Jackson, O. Sherman Walker, Coalton, has entire supervision. Drift opening, into No. 2 seam, which is about 30 inches thick. Worked on single entry system. Natural ventilation. Four miners and 1 day hand are employed. One inspection was made and mine found in fair condition.

ROTTINGHAUS.

Located on D. S. R. R. Operated by Rottinghaus Coal Co., Jackson, O. John Rottinghaus, Jackson, O., is Superintendent, Wm. Whitlock, Jackson, O., Mine Foreman. Drift, into No. 1 seam of coal, which is 3 feet in thickness. Worked on single entry system. Furnace ventilation. Eight miners and 3 day men are employed. One inspection was made and mine found in fair condition.

COCHRAN.

Located seven miles south of Jackson, O. Transportation D. S. R. R. Geo. Wheldon, Jackson, is Superintendent, and A. J. Cochran, Jackson, Mine Foreman. Drift, into No. 1 seam, which is 3 feet thick. Worked on single entry system. Furnace ventilation. Thirty miners and 8 day men are employed. One inspection was made and ventilation found deficient, owing to the air leaking through the brattice and returning to the outlet before it reaches the working places.

COMET NO. 3.

Located near Chapman. Transportation D. S. R. R. Operated by Comet Coal Co., Wellston, O. B. R. Billingsley, Wellston, O., is Superintendent, and A. P. Lauderbach, Coalton, O., Mine Boss. Drift opening, into No. 2 seam of coal, which is 28 inches thick. Worked on single entry system, and has natural ventilation. One inspection was made and mine found in bad condition. Management was ordered to put in a furnace at once. On July 31st, Thomas West, a mule driver, was severely injured by being run over by a trip of loaded cars while going over a down grade.

CRESCENT.

Located near Jackson, O. Transportation, D. S. R. R. Operated by Crescent Coal Co., Jackson, O. E. O. Roberts, Jackson, O., is Superintendent, and J. H. Jones, of Jackson, O., Mine Boss. Drift opening

into No. 2 seam of coal, which is here about 26 inches thick. Worked on single entry system. Furnace ventilation. Twenty miners and 4 day hands are employed. One inspection was made during the year and mine found in fair condition.

CAMERON.

Located near Madison Furnace. Transportation C. H. & D. R. R. Operated by Coalton Coal Co., Coalton, O. Norris Cameron, Coalton, O., is Superintendent, W. O. Lambert, Rempel, O., Mine Boss. Drift opening, into No. 2 seam of coal, which is about 30 inches thick. Worked on single entry system, and has furnace ventilation. Seven miners and 2 day men are employed. One inspection was made and mine found in fair condition.

PEERLESS.

Located near Jackson, O. Transportation, D. S. R. R. Operated by Peerless Coal Co., Jackson, O. D. D. Davis, Jackson, O., Superintendent, M. M. Morgan, Mine Foreman. Drift opening, into No. 1 seam of coal, which is here about 2½ feet thick. Worked on double entry system. Furnace ventilation. Eleven miners and 7 day men are employed. On July 13th mine was found in bad condition, and Mine Boss was ordered to close down. July 18th, mine found in improved condition and permitted to resume work.

COALTON NO. 3.

Located near Coalton, O. Transportation, D. S. R. R. Norris Cameron, Coalton, O., is Superintendent, and David Simpson of same place, Mine Boss. Drift opening, into No. 2 seam of coal, which is about 30 inches thick. Six miners and one day hand are employed. Pillars are being drawn and mine will soon be abandoned. One inspection made.

OAK HILL.

Located near Oak Hill, Ohio. Is operated by Oak Hill Fire Brick Co. J. J. Thomas has entire supervision. Worked on single entry system and has furnace ventilation. Ten miners and 4 day men are employed. One inspection made and mine found in fair condition. Pillars are being drawn and mine will soon be abandoned.

ELKHORN.

Located near Madison Furnace. Transportation C. H. & D. R. R. Operated by Elkhorn Coal Co., Jackson, O. H. E. Hunt, Jackson, O., is Superintendent, and Geo. Griffiths, Oak Hill, O., Mine Boss. Drift opening into No. 4 seam of coal. Furnace ventilation. Worked on double entry system. Twelve miners and 2 day hands are employed. One inspection made and mine found in fair condition.

DAVIS FIRE BRICK.

Located at Oak Hill, O. Operated by Davis Fire Brick Co., Oak Hill, O. Evan Davis, Oak Hill, is Superintendent, Geo. Yates, Oak Hill, Mine Boss. Drift opening into No. 5 seam of coal, which is here about 3 feet thick. A fire clay overlaying the coal is about 2 feet thick and is also mined, both products being used in the brick work which is located near the mine. Worked on double entry system, and has furnace ventilation. Thirteen miners and 3 day men are employed. Two inspections were made and mine found in good condition.

THOMAS DAVIS.

Located at Oak Hill, and is operated by Ward & Allen, Oak Hill, Ohio. Thomas Davis, Oak Hill, has entire supervision. Drift into No. 5 seam of coal, which is about 3 feet thick. Three miners and 2 day men are employed. The pillars are being drawn and mine will soon be abandoned. One inspection made.

EMMA NO. 2.

Located near Glen Roy, O. Transportation, D. S. R. R. Operated by Emma Coal Co., Jackson, O. Edwin Jones, Jackson, O., is Superintendent, and Dan C. Jones, of Coalton, Mine Boss. Shaft, 82 feet deep, penetrating No. 2 seam of coal, which is 3 feet thick. Worked on double entry system, and has fan ventilation. Thirty miners and 16 day men are employed. Three inspections made during the year. August 31st ventilation was found deficient, owing to the airway being almost closed up with slate. Management was ordered to clean airway and place check doors on all entries. September 12th, mine found in fair condition. Former orders had been complied with.

DOMESTIC.

Located near Wellston, O. Transportation, D. S. R. R. Operated by Domestic Coal Co., Wellston, O. H. A. Goddard, Wellston, has entire supervision. Shaft, 62 feet deep, penetrating No. 2 seam of coal, which is $3\frac{1}{2}$ feet thick. Worked on double entry system and has fan ventilation. Seventy-two miners and 20 day hands are employed. Two inspections were made and mine found in good condition. On October 14th, John and David Davis, brothers, were burned in a horrible manner by an explosion of a keg of powder. David Davis died from his injuries October 15th. The coal is cut and hauled by electric power.

SUPERIOR NO. 1.

Located near Wellston. Transportation D. S. and C. H. & D. R. R. Operated by Superior Coal Co., Jackson, O. H. C. Martin, Jackson, O.

is Superintendent, and Evan Thomas, Coalton, O., Mine Boss. Shaft, 100 feet deep, penetrating No. 2 seam of coal 3 feet thick. Worked on double entry system. Fan ventilation. Seventy-five miners and 43 day men are employed. Five inspections were made during the year. August 25th, mine was found in bad condition and part of the mine was ordered to cease work until mining laws were complied with. August 28th, mine was found in an improved condition and permitted to resume work.

SUPERIOR NO. 2.

Located near Wellston. Transportation, D. S. R. R. Operated by Superior Coal Co., Jackson, O. H. C. Murfin, Jackson, O., is Superintendent and James Duane, Coalton, O., Mine Boss. Shaft, 85 feet deep, penetrating No. 2 seam of coal, which is 3 feet thick. Worked on double entry system and has fan ventilation. Seventeen miners and 11 day men are employed. One inspection made and mine found in fair condition. The solid coal is all worked out and pillars are being drawn. Tested scales July 3d, and found them weighing correctly.

SUPERIOR NO. 3.

Located near Wellston. Transportation B. & O. R. R. Operated by the Superior Coal Co., of Jackson, O. Sam Wilson, Wellston, is Superintendent, and C. M. Hutchinson, Glen Roy, Mine Boss. Shaft, 43 feet deep, penetrating No. 2 seam of coal, which is here $3\frac{1}{2}$ feet thick. Worked on double entry system and has fan ventilation. One hundred miners and 67 day men are employed. Four inspections made. March 30th mine was found in fair condition. September 11th and October 31st condition of the mine was bad. November 28th mine was found in improved condition. Geo. Ebert succeeded C. M. Hutchinson as Mine Boss.

SUPERIOR NO. 4.

Located near Glen Roy, O. Transportation, C. H. & D. R. R. Operated by Superior Coal Co., Jackson, O. Sam Wilson, Wellston, is Superintendent, D. E. Woodruff, Jackson, Mine Foreman. Shaft opening, 85 feet deep, penetrating No. 2 seam of coal, which is 3 feet thick. Worked on double entry system and has fan ventilation. One hundred miners and 34 day men are employed. February 3d, was called to this mine to investigate fatal accident which resulted in the death of David Ragland. He was injured by fall of slate while working at the face of his room, on January 30th, and died January 31st from injuries. Three visits made during the year and mine found in fair condition.

SUPERIOR NO. 8.

Located near Wellston on Switch of C. H. & D. R. R. Operated by Superior Coal Co., Jackson, O. Sam Wilson, Wellston, O., is Su-

perintendent, and Henry Shires of same place, Mine Boss. Shaft opening, 109 feet deep, penetrating the No. 2 seam of coal, which is $3\frac{1}{2}$ feet thick. Worked on double entry system and has fan ventilation. This mine employs 66 pick miners; 180 loaders; 24 machine runners and 145 day men. Five visits made and mine found in good condition. On February 13th, Emerson Oiler, mule driver, was killed by falling under a trip of loaded cars. August 12th, Lewis Blanchard was killed by a fall of draw slate while working at the face of his working place. Alonzo Conkle was injured October 13th by fall of slate and died October 24th from injuries received.

SUPERIOR NO. 9.

Located near Wellston. Transportation C. H. & D. Operated by Superior Coal Co., Jackson, O. Samuel Wilson, Wellston, is Superintendent, and Charles May, Wellston, Mine Boss. Shaft, 156 feet deep, penetrating No. 2 seam of coal, which is $3\frac{1}{2}$ feet thick. Worked on double entry system and has fan ventilation. This mine employs 100 pick miners; 81 loaders; 18 machine runners and 95 day men. Three inspections made and mine found in good condition.

SUPERIOR NO. 10.

Located about eight miles east of Wellston on switch of C. H. & D. R. R. Operated by Superior Coal Co., of Jackson, Ohio. Samuel Wilson, Wellston, Ohio, is Superintendent, and Benj. Sweet, Wellston, Mine Boss. This mine consists of five drift openings into the No. 4 and No. 5 seams of coal, which are here from 3 to 4 feet thick. Worked on double entry system and have fan ventilation. Two hundred and fifty miners and 90 day men are employed. These openings were inspected eight times during the year and were found in fair condition. Picks and electric machines are used to mine the coal. Benj. Sweet succeeded Wm. Warner as Mine Boss.

COMET NO. 1.

Located at Wellston, O., on D. S. R. R. Operated by The Comet Coal Co., Wellston, O. B. R. Billingsley, Wellston, is Superintendent, and James Gallagher, Wellston, is Mine Boss. Shaft, 80 feet deep into the No. 2 seam of coal, which is here 4 feet thick. Worked on double entry plan and has fan ventilation. Eleven miners and 7 day hands are employed. Four inspections made during the year and ventilation found deficient at all times. There was but one outlet at this mine. October 4th, the mine was shut down until second opening was made. John M. James succeeded James Gallagher as Mine Boss.

NEW ADA.

Located about three miles east of Wellston on D. S. R. R. Operated by the New Ada Coal Co., Jackson, O. N. M. White, Jackson, is Superintendent and Calvin Littlejohn, Wellston, is Mine Foreman. Shaft, 150 feet deep, penetrating the No. 2 seam of coal, which is here about 28 inches thick. Worked on double entry system and has fan ventilation. Thirty miners and 12 day hands are employed. Three inspections made and mine found in fair condition.

JONES SLOPE.

Located on Grace Switch. Operated by J. E. Jones Coal Co., Jackson, O. Transportation, D. S. R. R. J. E. Jones, Jackson, Ohio, is Superintendent, and M. M. Morgan, Jackson, O., Mine Foreman. Slope 50 feet deep into the No. 2 seam of coal, which is here 3 feet thick. Worked on single entry system and has fan ventilation. Twelve miners and 5 day hands are employed. One inspection made and mine found in good condition. Mine has been abandoned since inspection was made. Picks are used to mine the coal.

GRACE.

Located on Ada Switch. Transportation, D. S. R. R. Operated by the Chapman Coal Co., Jackson, O. J. E. Hayes, Chapman, O., is Superintendent, and John Newport, Chapman, is Mine Foreman. Shaft opening 100 feet deep, penetrating the No. 2 seam of coal, which is here about 3 feet thick. Worked on single entry system and has fan ventilation. Sixty-four miners and 33 day hands are employed. One inspection made and mine found in fair condition. Electric machines are used to cut coal, which is hauled to the shaft by motor.

ROWE.

Located near Coalton, O., on D. S. R. R. Operated by Wm. Rowe & Son, Coalton, O. Wm. Rowe, Coalton, O., is Superintendent, and James Courtney, Coalton, O., is Mine Boss. Drift opening into No. 2 seam of coal, which it at this point about 28 inches thick. Worked on single entry system and is ventilated by furnace. Seventeen miners and 7 day hands are employed. Four inspections were made. July 20th, mine was found in very bad condition, and mine was ordered to cease operation; August 3d, mine found in improved condition and permitted to resume work.

JACKSON HILL.

Located on Springfield Switch. Transportation, D. S. R. R. Operated by the Emma Coal Co., Jackson, O. E. D. Jones, Jackson, O., is Superintendent, and J. D. Richards, same place, is Mine Boss. Drift,

penetrating the No. 2 seam of coal, which is here 3 feet thick. Worked on single entry system and has furnace ventilation. Seventy-five miners and 23 day hands are employed. Three inspections were made. On November 20th, was called to this mine to investigate fatal accident which resulted in the death of Geo. Whipple, who was killed November 16th, while working at the face of his working place. Mine was in fair condition, with the exception of first north entry. Ventilation was deficient owing to the air leaking through the brattice and returning to the outlet before reaching the working places.

VICTOR NO. 1.

Located at Coalton, O. Transportation, C. H. & D. R. R. Operated by Thomas Evans, Coalton, O. Thomas Evans, Coalton, O., is Superintendent, and J. R. Whiting, Coalton, O., is Mine Boss. Drift opening into the No. 2 seam of coal, which is here about 30 inches thick. Worked on single entry system and has fan ventilation. Fifteen miners and 6 day hands are employed. Two inspections made and mine found in fair condition. Picks are used to mine the coal.

ACORN SLOPE.

Located near Glen Roy, on the D. S. R. R. Operated by the Jones Coal Co., Jackson, O. J. E. Jones, Jackson, O., is Superintendent, and C. W. Holmes, Glen Roy, O., Mine Boss. Slope, 440 feet, penetrating the No. 2 seam of coal, which is here about 30 inches thick. Worked on the double entry system and has fan ventilation. Forty-seven miners and 26 day hands are employed. January 26th, mine was found idle, and no inspection was made. April 13th, mine was visited and found in fair condition. Morgan-Gardner Electric machines are used to mine the coal.

MILTON NO. 2.

Located at Wellston, on the C. H. & D. R. R. Operated by the Milton Coal Co., Wellston, O. W. B. Montgomery, Wellston, is Superintendent, and Nick Foit, Wellston, is Mine Foreman. Shaft, 80 feet deep, penetrating the No. 2 seam of coal, which is here about 4 feet thick. Worked on double entry system and has fan ventilation. Two inspections were made and mine found in fair condition; and has since been abandoned.

GLOBE.

Located at Jackson, on B. & O. S. W. R. R. Operated by the Globe Iron Co., Jackson, O. J. E. Jones, Jackson, O., is Superintendent, and Thos. Hughes, Jackson, is Mine Boss. Worked on the double entry system and has fan ventilation. Eighty-eight miners and 24 day hands are employed. Six visits were made. On January 31st, mine

was found in bad condition and ordered to cease operation. February 6th, mine was found in improved condition. On February 7th, the tipple burned down and mine was idle for nearly four months. August 1st, ventilation was found deficient on three entries, and Mine Boss was ordered to cease work on these entries. August 26th, mine was found in an improved condition and permitted to resume work.

TOM CORWIN NO. 1.

Located near Glen Roy, on the D. S. R. R. Operated by Tom Corwin Coal Co., Dayton, O. J. E. Harper, Glen Roy, O., is Superintendent, and G. W. Welch, Glen Roy, is Mine Boss. Shaft opening, 110 feet deep, penetrating the No. 2 seam of coal, which is here about 30 inches thick. Worked on the double entry system and is ventilated by fan. One hundred miners and 42 day hands are employed. Four visits were made. September 14th, was called to this mine to investigate cause of fatal accident which resulted in death of James Null, who was injured by fall of slate on September 13th, and died September 14th. September 19th, ventilation was found deficient, and Mine Boss was given ten days to comply with mining laws. October 2d, mine was found in an improved condition. Picks are used to mine the coal.

PRICE.

Located near Jackson, on the D. S. R. R. Operated by W. A. Gosline, Toledo, O. J. C. Hurd, Jackson, O., is Superintendent, and Arthur Mapes, Jackson, O., is Mine Boss. Drift opening into the No. 2 seam of coal, which is here 28 inches thick. Worked on the single entry plan and ventilated by furnace. Two visits were made during the year. One hundred and thirteen miners and 12 day hands are employed. February 14th, mine was found in bad condition. Visited on September 22d and conditions were fair. An air shaft had been sunk at the head of the first west entry.

STANDARD.

Located at Glen Roy, O., on the D. S. R. R. Operated by Edwin Jones, Jackson, O. E. D. Jones, Jackson, is Superintendent, and Dan C. Jones, Coalton, O., is Mine Boss. Shaft opening, 85 feet deep, penetrating the No. 2 seam of coal, which is here 3 feet thick. Worked on single entry system, and is ventilated by fan. Seventeen miners and 6 day hands are employed. Three inspections were made. September 28th, mine was found in bad condition, having but one escapement way, and on November 9th ordered the mine closed until second opening was made.

WELLSTON NO. 3.

Located at Wellston, on C. H. & D. R. R. Operated by The Wellston Coal Co., Wellston, O. Wm. Montgomery, Wellston, O., is Superintendent, and Robert Pope, Wellston, is Mine Boss. Shaft, 27 feet deep, penetrating the No. 2 seam of coal, which is here 4 feet thick. Worked on double entry system and is ventilated by fan. Twenty-two miners and 10 day hands are employed. Two inspections were made, and mine found in poor condition, owing to the fact that it is all pillar work.

FLUHART NO. 1.

Located at Wellston, O., on the B. & O. S. W. R. R. Shaft, 80 feet deep, penetrating the No. 2 seam of coal, which is here 3 feet thick. Operated by the Fluhart Coal Co., Wellston, O. Theo. Fluhart, Wellston, O., is Superintendent, and David Powell, Wellston, is Mine Boss. Worked on double entry system, and has fan ventilation. Twenty-one miners and 15 day hands are employed. Three visits were made, and ventilation found deficient at all times. The solid coal is all worked out and is all pillar work. Mine will soon be abandoned. October 23d, tested scales and found them weighing correctly.

FLUHART NO. 2.

Located at South Wellston. Transportation, C. H. & D. R. R. Operated by Fluhart Coal Co., Wellston, O. Theo. Fluhart, Wellston, O., is Superintendent, and Benjamin Sweet, Wellston, is Mine Foreman. Shaft opening, penetrating No. 2 seam of coal, which is 3 feet thick. Worked on double entry system and has fan ventilation. Twenty-nine miners and 10 day men are employed. On March 10, stairs were ordered to be built in air shaft. October 18, visited mine and found that the stairs which had been ordered on former visit had not been built and mine was ordered to cease work. Also ordered safety springs put on cages. Stephen Coyle was injured by fall of slate on September 25th and died September 27th from his injuries. Pillars are being drawn and mine will soon be abandoned. Two inspections were made.

FLUHART NO. 3.

Located at Wellston, on the B. & O. R. R. Operated by Fluhart Coal and Mining Co., Wellston, O. Theo. Fluhart, Wellston, O., is Superintendent, and E. M. Pearsons, Wellston, is Mine Foreman. Shaft opening, 80 feet deep, penetrating the No. 2 seam of coal, which is about 26 inches thick. Worked on double entry system and has fan ventilation. Twenty-three miners and 10 day hands are employed. Two inspections were made, and mine found in fair condition.

ALMA.

Located at Glen Roy, Ohio, on the C. H. & D. R. R. Operated by the Alma Coal Co., of Glen Roy, O. C. K. Davis, Glen Roy, is Superintendent, and Frank Craggs, Glen Roy, Mine Boss. Shaft opening, 76 feet into the No. 2 seam of coal, which is about 3 feet thick. Is worked on double entry system and has fan ventilation. One inspection made and mine found in fair condition.

D. C. & I.

Located at Wellston, O. Transportation, C. H. & D. R. R. Operated by the D. C. & I. Coal Co., of Wellston, O. Wm. Montgomery, Wellston, is Superintendent, and Cornelius Coyle, same place, is Mine Boss. Shaft opening, 85 feet deep, penetrating the No. 2 seam of coal, which is here about 3 feet thick. Worked on the double entry system and has fan ventilation. One hundred and sixty-six miners and 71 day hands are employed. February 7th, the north side of this mine was found in bad condition. February 21st, mine was found in an improved condition. A small electric fan had been erected to help force the air around the mine.

BUCKEYE.

Located near Coalton, O., on the C. H. & D. R. R. Operated by the Buckeye Coal Co., Coalton, O. Elmer Sell, Coalton, O., is Superintendent, and W. L. Rawlins, Byers, is Mine Boss. Drift opening penetrating the No. 2 seam of coal, which is here 3 feet thick. Worked on double entry system and has furnace ventilation. Thirty-two miners and 16 day hands are employed. Three inspections were made and mine found in fair condition. Tested scales October 9th and found them incorrect.

MILTON NO. 3.

Located near Wellston, O. Transportation, C. H. & D. and H. V. R. R. Shaft, 80 feet deep, penetrating the No. 2 seam of coal, which is $3\frac{1}{2}$ feet thick. Operated by the Milton Coal Co., Wellston, O. Wm. Montgomery, Wellston, O., is Superintendent, and G. W. Davis, same place, Mine Foreman. Twenty-eight miners and 12 day men are employed. March 1st, mine was visited and found in fair condition. July 17th, mine was visited, found idle, and no inspection made. A fan is used as a ventilating medium.

JONES & MORGAN NO. 3.

Located near Glen Roy, O., on the C. H. & D. R. R. Operated by the Jones & Morgan Coal Co., Jackson, O. Moses Morgan, Jackson, O., is Superintendent, and D. R. Jones, same place, Mine Foreman.

Slope, 150 feet deep penetrating the No. 2 seam of coal, which is 3 feet thick. Worked on the single entry system and is ventilated by a fan. Forty-three miners and 21 day hands are employed. Two inspections were made and mine found in good condition. This mine commenced operation in 1881 and has never been visited by a fatal accident.

SOUTHERN OHIO.

Located about nine miles east of Wellston, O., on the D. S. R. R. Operated by the Southern Ohio Coal Co., Wellston, O. J. E. Sylvester, Wellston, O., is Superintendent, and Frank Pierpont, same place, Mine Foreman. Drift opening into the No. 5 seam of coal, which is 3 feet thick. Worked on double entry system and has furnace ventilation. Twelve miners and 4 day men are employed. One inspection made and mine found in fair condition.

SPRINGFIELD.

Located near Chapman, O., on the D. S. R. R. Operated by the Chapman Coal Co., Jackson, O. J. E. Hayes, Chapman, is Superintendent, and W. J. Eisnaugle, same place, Mine Boss. Shaft, 54 feet deep, penetrating the No. 2 seam of coal, which is 3 feet thick. Worked on single entry system and has fan ventilation. Eighty-four miners and 47 day men are employed. Two inspections made during the year, and general condition of mine was fair.

NORTHERN.

Located near Glen Roy, O., on D. S. and C. H. & D. R. R. Operated by the Northern Coal Co., Jackson, O. Edwin Jones, Jackson, O., is Superintendent, and Dan C. Jones, Coalton, O., Mine Foreman. Shaft, 40 feet deep, penetrating the No. 2 seam of coal, which is 3 feet thick. Worked on single entry system and has fan ventilation. Thirty miners and 12 day hands are employed. March 7th mine was visited, found idle, and no inspection was made. Three inspections were made during the year. August 30th, mine was found in bad condition. The air was polluted with black damp, which was coming from the old works of Emma No. 2 mine. Ordered all openings between these two mines closed up at once.

HIPPEL SLOPE.

Hippel Slope is located near Coalton, O., on the D. S. R. R. Operated by the Hippel Coal Co., Coalton, O. W. D. Hippel, Coalton, is Superintendent, and J. C. Rowe, Coalton, Mine Foreman. Slope, 125 feet deep, penetrating the No. 2 seam of coal, which is 3 feet thick. Worked on single entry system and is ventilated by fan. Thirty miners and 12 day hands are employed. Two inspections were made during the year, and general conditions were fair.

STAR FURNACE.

Located near Jackson on D. S. R. R. Transportation, D. S. R. R. Operated by the Star Furnace Co., Jackson, Ohio. L. V. Brown, Jackson, O., is Superintendent, and Jeff Whaley, Jackson, O., Mine Foreman. Drift opening into No. 1 seam of coal, which is 30 inches thick. Worked on double entry system, and has fan ventilation. Forty miners and 19 day men are employed. Three inspections were made. March 9th, ventilation was found deficient; visited April 4th and June 2d and found in an improved condition.

HIBALL.

Located near Chapman, Ohio, on Springfield Switch. Transportation, D. S. R. R. Operated by the Armstrong Coal Co., Jackson, O. J. W. Moore, Chapman, O., has entire supervision. Drift opening into the No. 2 seam of coal, which is 26 inches thick. Worked on single entry system and ventilated by furnace. Five miners and 2 day hands are employed. One inspection made during the year. This mine has since been abandoned.

ECLIPSE.

Located near Chapman, O., on D. S. R. R. Operated by Atlas Coal Co., Jackson, O. E. O. Roberts, Jackson, O., is Superintendent, and James Oliver, Chapman, O., Mine Foreman. Drift opening into the No. 2 seam of coal, which is about 28 inches thick. Worked on single entry system, and is ventilated by furnace. Ten miners and 3 day men are employed. One inspection made during the year and mine found in fair condition. Pillars are being drawn and mine will soon be abandoned.

MC KITTRICK.

Located at McKittrick Station on C. H. & D. R. R. Operated by Jackson Fuel Co., Oak Hill, O. John Murphy, Oak Hill, is both Superintendent and Mine Boss. Drift opening into No. 5 seam of coal, which is $3\frac{1}{2}$ feet thick. Worked on double entry system, and is ventilated by fan. Twenty-nine miners and 8 day men are employed. June 30th mine was found in a frightful condition: ventilation was found deficient and roadway covered with mud and water, and but one outlet to this mine. Mine Boss was ordered to work but 10 men in this mine. August 5th, mine found in fair condition. A fan had been erected and second opening made. Five inspections were made.

PRITCHARD.

Located near Coalton. Transportation, Hocking Valley R. R. Operated by Henry Pritchard, Coalton, Ohio. Wm. Law, Coalton, is Mine Foreman. Drift opening into the No. 2 seam of coal, which is 28

inches thick. Worked on single entry system, and has furnace ventilation. Ten miners and 2 day hands are employed. Ventilation was found deficient owing to air leaking through the brattice and dissipating before it reaches the head of the working places. One inspection made during the year.

LIST OF FATAL ACCIDENTS, JACKSON COUNTY,
OHIO, 1905.

David Ragland, injured at Superior No. 4 by fall of slate; died January 31st.

Emerson Oiler, mule driver, run over by trip of loaded mine cars Superior No. 8 mine, February 13th.

Lewis Blanchard, killed in Superior No. 8 mine by fall of slate, August 12th.

James Null, injured by fall of slate September 13th, at Tom Corwin mine; died September 14th.

Stephen Coyle, injured by fall of slate September 25th, at Fluhart No. 2; died September 27th.

David Davis was injured by an explosion of powder October 14th at Domestic mine; died October 15th.

Alonzo Conkel, injured October 13th at Superior No. 8 mine; died October 24th.

Geo. Whipple, killed by fall of slate at Jackson Hill mine on November 16th.

Alvie Clark was injured by a fall of slate November 24th at Fluhart No. 1 mine; died December 6th.

VINTON COUNTY.

CORNELIA NO. 1.

Located 10 miles east of Wellston on D. S. R. R. Operated by Cornelia Coal Co., Wellston, O. Carl Goddard, Wellston, O., is Superintendent, and Jacob Marting, same place, Mine Foreman. Shaft 73 feet deep, penetrating No. 4 seam of coal, which is 4 feet thick. Worked on double entry system, and has fan ventilation. Twenty-four miners and 12 day men are employed. Ventilation was found deficient owing to airway being choked up with slate, which was ordered cleaned out at once. Mine has since suspended operation. One inspection made during the year, covered by this report.

WARREN JONES.

Located at Zaleski, O. Transportation B. & O. S. W. R. R. Operated by the Warren Jones Coal Co., Wellston, O. C. N. Jones, Wellston, is Superintendent, Geo. Kavanaugh, Zaleski, O., Mine Boss. Drift opening, penetrating No. 4 seam of coal, which is $3\frac{1}{2}$ feet thick. Worked on double entry plan, and is ventilated by furnace. Forty-three miners and 13 day men are employed. March 27th, tested scales and found them weighing correctly. June 26th, mine was inspected and found in fair condition, with exception of some rooms on No. 2 entry. Check doors were ordered put on this entry in order that more air could be brought into the rooms. July 6th, mine was found in fair condition, orders given on my former visit having been complied with.

ELK FORK.

Located at Elk Fork, on H V. R. R. Operated by the Elk Fork Coal Co., Elk Fork, O. W. P. Porter, Elk Fork, is Superintendent, and August Ruff, same place, Mine Boss. Shaft opening, 95 feet deep, penetrating the No. 2 seam of coal, which is 3 feet thick. Worked on double entry system, and has fan ventilation. Fifty miners and 16 day men are employed. Three inspections were made. March 31, mine found in good condition. December 8th, ventilation found deficient owing to the air leaking through the brattice, returning to the outlet before it reached the working places. December 19, mine was found in an improved condition. Both picks and electric machines are used to mine the coal.

MOHR & MINTON.

Located near McArthur, O. Transportation, H. V. R. R. Operated by the Mohr-Minton Coal Co., McArthur, O. C. B. Wescott, McArthur, is Superintendent, and Earl Dickson, same place, Mine Boss. This mine consists of two drift openings into the No. 3 seam of coal, which is five feet thick. Worked on double entry system and has furnace ventilation. Twenty-eight miners and 6 day hands are employed. Six inspections made during the year. March 31, the No. 2 opening was found in bad condition. Ordered furnace built at once. June 27, mine was found in fair condition, the furnace having been built.

OUTHWAITE.

Located at Oretton, O. Transportation, H. V. R. R. Operated by the Outhwaite Coal Co., of Rockaway, O. Frank Outhwaite, Rockaway, O., is Superintendent, and Henry Eberts, Oretton, O., is Mine Boss. Drift opening into the No. 3 seam of coal, which is 3 feet thick. Fourteen miners and 6 day men are employed. Three inspections made during the year, and mine found in fair condition. Tested scales September 20th and found them weighing correctly.

ALMA CEMENT.

Located at Oretton, O. Transportation, H. V. R. R. Operated by Alma Cement Co., Oretton, O. Orin Kelley, Oretton, O., is Superintendent, and Wm. Artis, same place, is Mine Boss. Drift into No. 4 seam of coal, which is 4 feet thick. Worked on double entry system, and is ventilated by fan. Forty-two miners and 15 day men are employed. April 3d, mine visited and found idle; and no inspection made. June 7th, mine was inspected and found in first-class condition. The coal is cut and hauled by electric power.

ALMA CEMENT NO. 1.

Located at Oretton, O. Transportation, H. V. R. R. Operated by Alma Cement Co., Oretton, O. Orrin Kelley, Oretton, O., is Superintendent, and Ben Yates, Oretton, O., Mine Boss. Drift opening into a seam of limestone which is about 6 feet thick. Worked on double entry system, and has furnace ventilation. Sixteen miners and 4 day men are employed. One inspection made and mine found in good condition.

ALMA CEMENT NO. 3, LIMESTONE.

Located at Oretton, O. Transportation, H. V. R. R. Orin Kelley, Oretton, O., is Superintendent, and W. H. Artis, Oretton, O., is Mine Boss. Operated by the Alma Cement Co., Oretton, O. Drift, into seam of limestone about 6 feet thick. Worked on double entry system, and has fan ventilation. Thirty miners and 6 day men employed. One inspection made and mine found in good condition.

CLARION.

Located at Clarion, O., on H. V. R. R. Operated by Gallia Mining Co., Jackson, O. O. E. Hartsook, Clarion, O., has entire supervision. Worked on double entry system. Drift into No. 4 seam, $4\frac{1}{2}$ feet thick. Mine was visited August 7th, found idle, and no inspection made. Fan ventilation.

STAR NO. 2.

Located at Hawks, O. Transportation, H. V. R. R. Operated by Star Coal Co., of McArthur, O. Elmer Keck, McArthur, O., is Superintendent, and Chas. Keck, Hawks, O., Mine Boss. Drift opening, No. 4 seam of coal, which is $4\frac{1}{2}$ feet thick. Worked on single entry system, and ventilated by furnace. Twenty-one miners and 6 day men employed. Visited on August 7th, found idle, and no inspection was made. November 24, mine inspected and ventilation found deficient, but there is very little room for improvement in this mine as the pillars are being drawn.

RACCOON VALLEY.

Located at Minerton, O. Transportation, H. V. R. R. Operated by the Raccoon Coal Co., Columbus, O. J. L. Lawler, Columbus, O., is Superintendent, and E. J. Lawler, Minerton, O., is Mine Boss. Drift opening, No. 4 seam, 4 feet thick. Worked on double entry system, and has fan ventilation. Twenty-four miners and 11 day men are employed. One inspection was made during the year, and mine found in good condition. Electric machines are used to mine the coal, which is hauled to the tipple by motor.

TRACE.

Located at Zaleski, O., on the B. & O. S. W. R. R. Operated by Avenelle Coal Co., Zaleski, O. Chas. Trace, Zaleski, O., is both Superintendent and Mine Boss. Drift opening into No. 4 seam of coal, which is 4 feet thick. Worked on double entry system. Fan ventilation. Twenty-two miners and 7 day men employed. One inspection made and mine found in very poor condition. The coal is mined by Jeffrey electric machines.

LOMAX.

Located near Lincoln Furnace on D. S. R. R. Operated by Lomax Coal Co., McArthur, O. Jas. Lomax, McArthur, O., is Superintendent, and Thos. W. Lomax, McArthur, Mine Boss. Drift opening into No. 4 seam of coal, 4 feet thick. Worked on the double entry system, and has natural ventilation. Seven miners and 3 day men are employed. One inspection was made and mine found in fair condition.

LAWRENCE COUNTY.

IRONTON CEMENT.

Located at Ironton. Transportation, N. & W. R. R. Operated by Ironton Portland Cement Co., Ironton, O. A. C. Steece, Ironton, O., is Superintendent, and F. R. Kitchen, same place, is Mine Boss. Drift into No. 5 seam of coal, which is here 3 feet thick. Worked on double entry system, and has fan ventilation. Thirty-seven miners and 10 day men are employed. Five inspections made. August 23, ventilation found deficient owing to a squeeze which crossed the main airway and almost closed it. October 14, mine was found in an improved condition; new airway had been made and fan placed in a new opening near the head of the works. The coal is hauled to tipple by electric motor. The Ironton Cement plant consumes the entire output of the mine.

PORTLAND CEMENT LIMESTONE.

Located at Ironton, O. Operated by E. L. Lambert, Ironton, O. A. C. Steece, Ironton, O., is Superintendent, and E. L. Lambert, same place, is Mine Foreman. Drift into a seam of lime 5 feet thick. Worked on single entry system, and has natural ventilation. Twenty-four miners and 7 day men employed. Four inspections made. February 16, condition of mine was bad, and management was given 30 days to ventilate the mine by artificial means. The management appealed to the Chief Inspector, claiming they would ignore my orders, and informed the Department that they had the best ventilation of any mine in the state. February 23d, in company with the Chief Inspector, we visited this mine, and the Chief informed them that the mine must be ventilated by artificial means of some kind. We suggested that fan be placed on north side of the east opening, and to make the inlet from the west side. Suggestions were accepted by the manager, and when completed will place mine in good condition. March 23, mine found in first-class condition, a 5-foot electric fan having been installed.

DEEGANS.

Located near Coal Grove, O. J. F. Deegans, Coal Grove, O., has entire supervision. Drift into No. 5 seam of coal, 3 feet thick. Ventilated by natural pressure. Eighteen miners and 2 day men are employed. March 21, mine was found in very bad condition, and management was given 10 days to ventilate the mine by artificial means. On April 7th, ordered management to close the mine. April 22, mine was visited and found in good condition, furnace having been built. This is a small domestic mine, and coal is used for domestic purposes.

LYND.

Located at Ironton, O. Operated by B. F. Lynd, Ironton, O. Wm. Kelley, Ironton, O., has entire supervision. Drift opening into No. 5 seam, about 30 inches thick. Worked on single entry system, and was ventilated by natural pressure. Sixteen miners and 2 day men employed. Three inspections were made. March 24, mine was found in bad condition, and management was requested to build a furnace. October 13, mine was still in bad condition and management was ordered to cease operation. October 19, mine was found in good condition, a furnace having been built.

COBB NO. 2.

Located at Etna, O. Transportation, D. S. R. R. Operated by Halley Coal Co., Pedro, O. David Halley, Pedro, O., is Superintendent, and Edward Complement, Pedro, O., Mine Boss. Drift, No. 5 seam, about 3 feet thick. Worked on single entry system. Furnace ven-

tilation. Fifty miners and 10 day men employed. June 20, ventilation fair on entries but deficient in rooms. Doors were ordered hung on the last four rooms on the No. 3 east entry. One inspection made.

COBB NO. 3.

Located at Etna Station. Transportation, D. S. R. R. Operated by Halley Coal Co., Pedro, O. David Halley, Pedro, O., is Superintendent, and Edw. Complement, same place, Mine Boss. Drift, No. 5 seam, 3 feet thick. Worked on single entry system, and is ventilated by furnace. Twenty-four miners and 6 day men employed. Four inspections made. March 24, ventilation was found deficient. June 20th, mine was still found in bad condition, and management was ordered to close mine at once. June 23, mine found in an improved condition, a furnace having been built.

WILLARD.

Located near Bartels Station. Transportation, D. S. R. R. Operated by Thos. McConnell, Steece, O. W. M. Adkins, Steece, O., has entire supervision. Drift, into seam of limestone about 6 feet thick. Worked on single entry system and ventilated by natural pressure. Thirty miners and 7 day men employed. July 27, mine was found in bad condition and management was given 20 days to ventilate mine by artificial means. August 24, mine found in fair condition, a furnace having been built.

KELLEY.

Located at Ironton, O., and is operated by Kelley Nail and Iron Co., Ironton, O. Conrad Klein, Ironton, O., is both Superintendent and Mine Boss. Drift, into No. 5 seam, 3 feet thick. Worked on single entry system and has furnace ventilation. Fifty miners and 8 day men are employed. Two inspections made, and mine found in fair condition. The Kelley Nail Mill, located at Ironton, consumes the entire output of this mine.

RILEY LIMESTONE.

Located near Center Station, O. Operated by the Kelley Nail and Iron Co., Ironton, O. Mike Riley, Ort, O., is both Superintendent and Mine Boss. Drift, into seam of limestone 8 feet thick and has natural ventilation. Sixteen miners and 5 day men are employed. Four inspections made during the year. July 26 and August 21, the mine was found in bad condition; mine boss was informed that he would have to comply with mining laws and ventilate mine by artificial means. October 11th, mine was ordered shut down until mining laws were complied with. October 20th, mine was found in an improved condition. Furnace had been built and mine permitted to resume work.

KELLEY LIMESTONE.

Located at Bartels Station. Transportation, D. S. R. R. Operated by Mrs. N. H. Kelley, Ironton, O. John Burke, Ironton, O., is Superintendent, and Peter Burke, Steece, O., is Mine Boss. This mine consists of three drift openings into a seam of limestone, about 6 feet thick. Is worked in a haphazard manner, having no system whatever. Natural ventilation. Sixteen miners and 7 day men employed. Three inspections made and ventilation was deficient at each visit. Management was ordered to build a furnace at once.

RYAN.

Located at Coal Grove, O., and is operated by B. I. Ryan, Coal Grove, O. B. I. Ryan has entire supervision. Drift into No. 5 seam, 3 feet thick. Worked on single entry system, and has natural ventilation. Eleven miners and 2 day men employed. One inspection made and mine found in poor condition. Management was requested to build a furnace.

HOLCOMB NO. 5.

Located near Buckhorn Furnace. Transportation, C. H. & D. R. R. Operated by the Buckhorn Coal Co., Ironton, O. Drift into No. 5 seam, 3 feet thick. Worked on double entry system and has furnace ventilation. Forty-two miners and 8 day men are employed. Lot Davis, Ironton, O., is Superintendent, and Isaac Day, Jep, O., is Mine Boss. June 1st, mine was found in bad condition. Entry was driven from 150 to 200 feet ahead of breakthroughs. Ordered all entries stopped and breakthroughs made at proper distance. June 19th, mine found idle and no inspection was made.

HOLCOMB NO. 4.

Located at Buckhorn Furnace. Transportation, C. H. & D. R. R. Operated by Buckhorn Coal Co., Ironton, O. Lot Davis, Ironton, is Superintendent, and Isaac Day, Jep, O., Mine Boss. Drift into No. 4 seam, $3\frac{1}{2}$ feet thick. Worked on double entry system and has furnace ventilation. Sixteen miners and 5 day men employed. December 21st, investigated cause of fatal accident which resulted in the death of Amaziah Buffington. Mr. Buffington was working a room alongside of Wm Patton. The pillar was very thin between the two rooms, and Mr. Patton fired a shot close to the rib, failing to notify Mr. Buffington to get out of the way. The shot blew through, killing Mr. Buffington almost instantly.

PINE GROVE LIMESTONE.

Located at Pine Grove, O. Operated by Hanging Rock Iron Co., Hanging Rock, O. Hugh Shields, Hanging Rock, is both Superintendent-

ent and Mine Boss. Drift, into seam of limestone about 6 feet thick. Worked on single entry system and has furnace ventilation. Twenty miners and 2 day men are employed. June 21st, mine was found in fair condition. October 17th, investigated fatal accident. Henry Boyer was killed by fall of limestone October 16th; he was mining underneath the lime when a large piece fell on him, killing him instantly.

HALLS.

Located near Moulten, O. Transportation, C. H. & D. R. R. Operated by J. F. Hall Coal Co., Dayton, O. E. B. Brohard, Jep, O., is both Superintendent and Mine Boss. Drift, into No. 2 seam, which is here about $3\frac{1}{2}$ feet thick. Worked on single entry system and is ventilated by furnace. Forty-four miners and 10 day men are employed. Two inspections made and mine found in fair condition.

IRISH HOLLOW NO. 2.

Located at Blackfork, O. Transportation, B. & O. S. W. R. R. Operated by the Blackfork Coal Co., Blackfork, O. Wm. Hitchcock, Black Fork, O., is Superintendent, and Wm. Jones, same place, is Mine Boss. Drift, into No. 5 seam, 3 feet thick. Worked on double entry system, and has furnace ventilation. Forty-three miners and 27 day men are employed. One inspection made and mine found in fair condition. Electric machines are used to mine the coal.

BLACKFORK NO. 1.

Located at Blackfork, O. Transportation, B. & O. S. W. R. R. Operated by Blackfork Coal Co., Blackfork, O. Wm. Hitchcock, Blackfork, O., is Superintendent, and Frank Haus, same place, is Mine Boss. Drift opening into No. 6 seam of coal, which is about 28 inches thick. Worked on double entry system, and has furnace ventilation. Fourteen men are employed. Mine has been idle for about two years and is just being cleaned up. One visit was made.

CLARION NO. 5.

Located at Blackfork, O. Transportation, B. & O. S. W. R. R. Operated by Blackfork Coal Co. W. L. Hitchcock, Blackfork, O., is Superintendent, and Frank Haus, same place, is Mine Boss. Drift opening into No. 4 seam, which is about 4 feet thick. Worked on double entry system, and has furnace ventilation. Thirty-two miners and 13 day men employed. One inspection made and mine found in fair condition.

GINN.

Located near La Grange, O. Transportation, D. S. R. R. Operated by the Ginn Coal Co., Ironton, O. H. H. Keyes, Ironton, O., is Superintendent, and John Bernard, La Grange, O., is Mine Boss. Drift opening into No. 5 seam, which is about 3 feet thick. Worked on single entry system, and has furnace ventilation. Fourteen miners and 2 day men are employed. One inspection was made and mine found in very poor condition.

J. D. PANCAKE.

Located near Forestdale, O., and is operated by J. D. Pancake, Ironton, O. October 18, investigated cause of fatal accident which resulted in the death of Mitchell Martin. This is a small push bank, and just two men were employed in the mine at time of accident. Mr. Martin was injured October 7th and died October 9th. Two visits were made during the year, and mine has since been abandoned.

LIST OF FATAL ACCIDENTS, LAWRENCE COUNTY,
OHIO, 1905.

Henry Boyer, killed in Pinegrove Limestone mine, by fall of lime, October 16th.

Mitchell Martin was injured in J. D. Pancake mine by fall of rock, October 6th; died October 9th.

Amaziah Buffington, killed in the Holcomb mine by shot blowing through a pillar December 20th.

SECOND DISTRICT.

D. H. WILLIAMS,

ATHENS, MEIGS AND WASHINGTON COUNTIES, AND A
PORTION OF NOBLE.

(233)

HON. GEO. HARRISON, *Chief Inspector of Mines, Columbus, Ohio:*

DEAR SIR:— I herewith submit to you the report of the Second Mining District, consisting of the Counties of Athens, Meigs, and a portion of Gallia, from January 1, 1905, to May 16th, 1905, at which time I severed my connections with the Department and tendered my resignation. The number of sets of scales tested and improvements made will be found in the body of this report. But one fatal accident occurred in this District during the time covered by this report, in the Luhrig No. Two Mine, Athens County, the unfortunate victim being Herman Bryan, who was employed as a cager at the bottom of the shaft, and was caused by the engineer hoisting the cage without a signal from the cagers at the bottom of the shaft.

During the period of my connection with the State Mining Department, I have endeavored to perform the duties of the office in an honorable manner, and to enforce the mining laws with consideration and justice to all concerned, and hope for my successor the same courteous treatment which has been accorded me by miners and operators throughout the district.

I hereby tender my thanks to the miners and operators of the State for their generous support given me in my official capacity, and you for your many helpful suggestions and advice, and wish for yourself and assistants a successful administration of the affairs of the Mining Department.

Very respectfully submitted,

D. H. WILLIAMS,

Inspector Second Mining District.

ATHENS, OHIO, May 16, 1905.

ATHENS COUNTY.

NO. 252.

Located one and one-half mile north of Glouster, O., on the K. & M. R. R., and operated by the Continental Coal Co., Columbus, O. D. S. Williams, Jacksonville, O., is superintendent and Jno. Eddy, Trimble, O., is mine boss. Shaft opening 100 ft. deep to the No. 6 seam of coal which is 6 ft. thick, fan ventilation. Electric machines are used to mine the coal, and motor haulage employing 150 coal loaders, 18 machine men and 40 day men. Visited January 26th to investigate a fire which originated in the mine from an unknown origin, which was discovered in the morning about 150 ft. on the dark entry from the hoisting shaft. Sixteen head of horses were lost, and the tipple was burned down. We closed the hoist and air shaft at mine No. 256 as the two mines were connected. On February 1st found the fire extinguished on the surface and the shafts still well sealed, and no leaks that could be detected. On March 23d again visited after the shaft at mine 256 had been opened and penetrated through this mine until they succeeded in travelling within 800 ft. of where the fire was located in mine 252, when it was found that the fire was still burning, and retreated and sealed up the mine. Sixteen visits were made between mine 252 and 256 until the fire was under control.

NO. 256.

Is located at Glouster, O., on the K. & M. R. R., and operated by the Continental Coal Co., Columbus, O. D. S. Williams, Jacksonville, O., is superintendent. Shaft 90 ft. in depth to the No. 6 seam of coal, which is 6 ft. in thickness, the coal being mined and hauled by electric power. Triple entry system is in use, and a large Buffalo fan is the ventilating medium. Visited February 24th, at the request of the superintendent for the purpose of consultation in regard to the reopening of the mine, which had been sealed on January 26th on account of the fire in mine No. 252. March 2d the mine was opened by going through into the No. 252 mine, and found that it was necessary to retreat back to the 3d and 4th west entries. It required eight days to wall off the two mines, and thirty-six brick stoppings were built to separate the two mines, at an estimation of 30,000 bricks. On March 31st visited at the request of D. S. Williams, the superintendent in charge, for the purpose of consulting as to whether it would be advisable to enter mine 252 for the purpose of scaling off the east side of the south side, which was successfully sealed off by great effort. April 18th I received information that the fire had broken out from mine 252. On arriving on the grounds was unable to determine whether it was a fire that had broken out in the 252 mine or whether it was a new fire which had originated in mine 256. On April 19th we fought against the smoke by splitting

the air in the north entry for a distance of 600 ft. This work was continued from day to day until the point was reached when it was discovered that it was a new fire which had originated in the 256 mine in the pump house, caused by an armature of the electric pump coming loose at one end allowing the brush holders to come in contact with the commutator. I was of the opinion that this would cause the wooden foundation to ignite together with the waste and oil which had accumulated there. The fire was successfully put out.

NO. 255.

Located two and one-half miles west of Jacksonville, O., on the K. & M. R. R., and operated by the Continental Coal Co., Columbus, O. Mel Rob, Jacksonville, O., is superintendent. Shaft 156 ft. deep, worked on the triple entry plan, and ventilated by a fan. Employs 100 loaders, 10 machine men and 36 day hands. Visited March 30 and found in good condition.

NO. 254.

Situated at Jacksonville, O., on the K. & M. R. R., and operated by the Continental Coal Co., Columbus, O. Dan McBride, Glouster, O., is superintendent and mine boss. Shaft 110 ft. deep to the No. 6 seam, worked on the double entry plan, fan ventilation. The coal is mined by electric machines and brought to the bottom of the shaft by rope haulage. One hundred and fifty miners, 12 machine men and 30 day men are employed. Visited February 3d and found in fair condition.

NO. 209.

Located on Sugar Creek, a tributary of the Hocking River, three miles north of Athens, O., and owned by the Continental Coal Co., Columbus, O. The coal is hauled on the A. A. & C. R. R., and then transferred to the Hocking Valley R. R. at the Hocking Station. Shaft opening to the No. 6 seam, 255 ft. in depth, the coal varying in thickness from 4 to 6½ ft. This plant consists of a modern steel tippie for the careful handling of coal, and is also equipped with the latest improved automatic cages, and first motion hoisting engine. A large reversible Buffalo fan is the medium for ventilation. The necessary buildings in connection with this mine have been erected in a neat and economical manner, consisting of a blacksmith and carpenter shop. The electrical department and office are all combined in one building, which has been erected as near fire proof as possible. This mine can be said to be modern in every respect, and is worked partially on the triple entry plan, and has brick stoppings throughout the mine for the purpose of conveying the ventilation to the face of the workings. The coal is being mined and hauled by electric power, which has been furnished from a central

power house plant, which also furnishes power for two other large mines owned by the same company. Chas. Coleman, Grosvenor, O., is mine boss. Seventy-eight miners, 28 day men and 8 machine men are employed. March 24th mine was found in good condition.

NO. 210.

Situated at the mouth of Sugar Creek, three miles north of Athens, O., on the A. A. & C. R. R., and operated by the Continental Coal Co., Columbus, O. Wm. Simons is mine boss. This mine is similar to the No. 209 in every respect with the exception that it has not installed a permanent fan. Two ten-foot fans are temporarily in use as ventilating mediums. Employs 30 loaders, 10 day men and 2 machine men. Visited March 24th and found in fair condition.

NOTE.

Since severing my connection with the Mining Department I wish to state to the many readers of this report that I have been placed in a position under the efficient management of the Sunday Creek Co., which has taken over all the properties operated by the Continental Coal Co., Columbus, O., where I could bring about some of the important improvements which I have so highly recommended in my previous annual reports. The Sunday Creek Co. has adopted an economical method in all of their new mines by installing T iron in all room work, and will later do away with horse power by installing gathering motors. They have also erected brick stoppings in all breakthroughs between entries. In looking over the deep shaft mines on Sugar Creek controlled by the Sunday Creek Co., in company with their manager of mines, Mr. J. M. Roan, where we were requested by Geo. Harrison, Chief Inspector of Mines, to equip these cages with safety appliances in order to comply with the requirements of the law governing hoisting cages, we found it impossible to secure safety appliances to do effectual work on steel guides. In order to comply with the requirements of the law it was deemed necessary for the protection of our employes to install separate elevators where wooden guides could be used, and where improved automatic safety catches could be applied effectually. We now have three elevators installed with safety appliances and tested to our satisfaction at the three mines known as 209, 210 and 211.

Trusting that other operators in this and other fields will do likewise for the protection of their employes, I remain,

Very respectfully yours,

D. H. WILLIAMS,

Athens, Ohio.

NO. 266.

Located two miles northwest of Glouster, O., on the K. & M. R. R., and operated by the Continental Coal Co., Columbus, O. Shaft opening to the No. 6 seam of coal, 90 ft. long. The coal is 6 ft. thick, and worked on the triple entry system. C. Andrews, superintendent, and J. Goulding, mine boss. One hundred and forty miners, 36 day men and 12 machine men are employed. On February 13th was requested by the Mine Committee to come and inspect the air shaft, second opening. Found ladders used for the escapement way in bad condition on account of ice which could not be prevented. To remedy this evil I requested that a good rope be kept at the shaft for the purpose of hoisting men in case of necessity. Also found the travelling way to the air shaft in bad condition, some places being found with two feet of water. Requested same placed in condition for the men to travel comfortably. Visited this mine on March 13th, when it was found in fair condition, and all improvements requested on former visit complied with.

NO. 311.

Situated at Oakdale, O., on the Z. & W. R. R., three and one-half miles northwest of Glouster, O. Ed Muier, Glouster, O., is mine superintendent and mine foreman. Shaft opening 90 ft. deep to the No. 6 seam, which is about 6 ft. in thickness. Double entry plan is worked, and fan is the ventilating medium. The coal is hauled by electric power. One hundred and twenty-five coal loaders, 48 day men and 12 machine men employed. February 6th found that the mine had been idle for eight weeks, and was just starting on this date. Found several stoppings and breakthroughs in bad condition. Requested same to be put in order at once. February 21st found in fair condition. May 3d requested some changes made on the 3d west entry to convey the volume of air into 16th cut off. Otherwise the mine was in fair condition.

NO. 267.

Located T. & O. C. switch and K. & M. R. R. three miles northwest of Glouster, O., and is operated by the Continental Coal Co., Columbus, O. Jno. M. Roberts is superintendent and Isaac Jones mine foreman. Slope opening 450 ft. in length to the No. 6 seam of coal, which is about 6 ft. thick, worked on the triple entry system and ventilated by a fan. April 18th this mine employed 200 miners, 56 day hands and 18 machine men. At this time the mine was found in fair condition, with the exception of the rooms on the 6th west entry, which were driven in an unreasonable distance; requested a check door placed between 28th and 29th rooms and also breakthrough between these rooms closed, with the exception of the last, for the purpose of conveying the

air into sail rooms. Also stopped room No. 23 on the 3d west south on account of being ahead of all others. Also requested door on the 2d west south at No. 16 room and ordered all dusty roads sprinkled.

NO. 275.

Situated at Chauncey, O., on the K. & M. R. R., and operated by the Continental Coal Co., Columbus, O. H. W. Penrod, Chauncey, O., is superintendent, and C. L. Foraker, mine foreman. Shaft 125 ft. long to the No. 6 coal, which is 6 ft. thick, triple entry system, fan ventilation, the coal being hauled by electric power. May 2nd, 140 loaders, 14 machine men and 58 day men employed. Was requested on this visit by the Mine Committee to test the scales, which were found weighing 50 pounds against the miners on the last bearing of the scale. No inspection of the mine was made as it was idle.

NO. 203.

Situated near Floodwood, O., on the C. H. V. & T. R. R., and operated by the Continental Coal Co., Columbus, O. Hugh Mallen is superintendent. Drift opening to the No. 6 seam of coal, which is about 6 ft. thick, double entry system, and fan ventilation is in use, the coal being hauled by electric power. March 16th, 160 coal loaders, 25 day men and 14 machine men were employed. The mine was found in fair condition on this visit.

NO. 204.

Located at Boyle's Crossing on the C. H. V. & T. R. R., and operated by the Continental Coal Co., Columbus, O. Chas. Monks is superintendent. Drift opening to the No. 6 seam of coal, which is from 3 to 5 ft. thick. Ventilated by fan and furnace. February 28th this mine employed 100 loaders, 27 day men and 16 machine men, and was found in fair condition.

NO. 205.

Situated one and one-half miles southeast of Nelsonville, O., on the C. H. V. & T. R. R., and operated by the Continental Coal Co., Columbus, O. Val Cox, Nelsonville, O., is superintendent, and Jno. Hughes, mine foreman. Slope opening to the No. 6 seam, 6 ft. in thickness, fan ventilation, and is equipped with rope haulage and the coal is mined by machines operated by compressed air. March 14th the mine employed 175 loaders, 60 day men and 18 machine men. Found in bad condition on account of the brattices and doors being out of repair throughout the mine. Requested that they be repaired at once.

NO. 10.

Located at Derthick, O., on the K. & M. Branch, and operated by the Sunday Creek Co., Columbus, O. J. F. Roberts, Corning, O., is

superintendent, and Ed. Lynch, Derthick, O., is mine boss. Shaft opening 110 ft. deep to the No. 6 coal worked on the double entry plan, and ventilated by a 20-foot fan. The coal is here six feet thick, and mined and hauled by electrical power. On February 20th 51 day men, 130 loaders and 12 machine men were employed, and the north side found in fair condition. March 28th stopped the east cut off on the south side until a sufficient volume of air was furnished. May 15th the west part of the mine was found in fair condition, some complaints of not sprinkling dusty parts of roads on the south side were made; requested the same to be done, and also ordered man holes on the motor road cleaned out.

NO. 10 X.

Situated at Orbiston, O., on the C. H. V. & T. R. R., and operated by the Sunday Creek Coal Co., Columbus, O. W. B. Burnell, Orbiston, O., is superintendent. Slope opening penetrating the No. 6 seam, which is about 6 ft. thick, triple entry system, and has fan ventilation. This mine is equipped with chain and motor haulage, and machines operated by electricity mine the coal. Visited January 16, when 240 loaders, 66 day men and 18 machine men were employed. This visit was for the purpose of testing railroad scales, and was found idle.

LUHRIG, 1, 2 AND 3.

Located at Luhrig, O., on the B. & O. S. W., and operated by the Luhrig Coal Co., Cincinnati, O. Shaft opening 135 ft. deep to the No. 6 seam of coal, worked on the double entry system, and ventilated by fans. The No. 1 is ventilated at the face of the north entry by an electric fan. Visited April 27th and found idle, but the old works of No. 1 were inspected and found clear of gas and fairly well ventilated. February 22d and 23d visited to investigate the death of Herman Bryan, who was killed on the 21st of February, in No. 2 by misunderstanding of the engineer, who was hoisting the cage without signal from the bottom cagers.

DOANVILLE NO. 1.

Situated at Doanville, O., on the C. H. V. & T. R. R., and operated by the C. & H. C. & I. Co., Columbus, O. Frank Culley, Doanville, O., is superintendent. Slope opening to the No. 6 seam, 6 ft. in thickness, worked on the double entry plan, and has fan ventilation. This mine is equipped with rope haulage, and machines operated by electricity mine the coal. March 17th, 117 loaders, 48 day men and 9 machine men were employed. Found the mine very faulty and bad roof in parts of the mine. Unless the territory on the south side proves far better than that on the north side, the mine will soon be a thing of the past. On this visit mine was found as usual, as far as the ventilation was concerned, in good condition.

DOANVILLE NO. 1 A.

Located at Doanville, O., and operated by the same company as the No. 1 mine. Drift opening, No. 7 coal, which is about 4 ft. thick, double entry system, furnace ventilation, and employs 37 loaders, 10 day men and 6 machine men. This mine was found in fair condition. Electric power is used to mine the coal.

NEW YORK COAL CO. NO. 1.

Situated at West Floodwood, O., on the C. V. & T. R. R., and operated by the New York Coal Co., Columbus, O. Page Morris, Nelsonville, O., is superintendent, and E. Shafer, mine boss. Drift opening to the No. 6 seam of coal, which varies in thickness from $3\frac{1}{2}$ to 5 ft., worked on the double entry system, and has furnace ventilation, the coal being mined by electric power. On March 1st this mine employed 85 coal loaders, 26 day men and 12 machine men. This visit was made at the request of the Mine Committee for the purpose of testing one set of railroad scales, which were found weighing correctly.

ECLIPSE NO. 3.

Is located three and one-half miles north of Athens, on the C. H. V. & T. R. R., and operated by the Johnson Coal Mining Co., Columbus, O. Shaft opening 179 feet deep to the No. 6 seam of coal, which is 6 ft. thick, operated by the triple entry system, and has fan ventilation. Electric power is used for mining and hauling the coal. On February 27th 58 loaders, 8 machine men and 34 day hands were employed, and it was found in good condition.

IMPERIAL NO. 1.

Situated four miles southeast of Nelsonville, O., on the C. H. V. & T. R. R., and operated by the Imperial Coal Co., Columbus, O. Zeth Williams is superintendent, and J. A. Murphy, Nelsonville, O., is mine foreman. Slope opening to the No. 6 seam of coal, which is 6 ft. thick, worked on the double entry system, and is ventilated by a fan. The mine is equipped with chain and motor haulage, and employs 160 loaders, 14 machine men and 34 day men. March 16th the mine was found in good condition.

MAPLE HILL.

Located three miles east of Nelsonville, O., on the C. H. V. & T. R. R., and is operated by the Maple Hill Coal Co., Nelsonville, O. Joshua Spencer, superintendent, and Jas. Moore, mine boss. Drift opening to the No. 6 seam of coal, which is about 7 ft. thick, double entry system and fan ventilation, the coal being mined by electric power and rope haul-

age. It employs 115 loaders, 28 day men and 14 machine men. March 16th, the mine being idle, no inspection was made.

M'LEISH NO. 31.

Located three miles north of Glouster, O., on the Z. & W. R. R., and operated by the McLeish Coal Co., Columbus, O. Jas. Richards is superintendent. Shaft opening to the No. 6 coal, which is very irregular and faulty, worked on the double entry system, with fan ventilation. The coal is mined and hauled by electric power. On January 31st the mine was found in good condition, and employs 99 loaders, 38 day men and 8 machine men.

SEDALIA.

Situated in the village of Glouster, O., on the K. & M. R. R., and is operated by the Sedalia Coal Co., Glouster, O. Jno. Palmer, Glouster, O., is superintendent, and F. Smith, mine boss. Slope opening to the No. 7 seam of coal, which is about 4 ft. 6 in. thick, worked on the double entry system, the coal being mined and hauled to the bottom by electric power, thence to the tippie by rope. Visited February 4th and found in fair condition with few exceptions. Found three men working inside the last breakthrough. Requested one taken out; also had changes made on trap doors on the east entry. Forty-seven loaders, 26 day men and 6 machine men are employed.

JUNIPER NO. 3.

Located near Buchtel, O., on the C. H. V. & T. R. R., and operated by A. J. Juniper & Sons, Nelsonville, O. Drift opening to the No. 6 seam of coal, which is 6 ft. thick. Double entry system is worked, and furnace ventilation is in use. The coal is mined by electric power and hauled to the tippie by a small locomotive. Visited February 8th and 65 loaders, 10 pick men, 26 day men and 4 machine men are employed. Found in fair condition on this visit. March 11th again visited, and found some of the doors in bad condition. Also tested one set of Hopper scales and found them weighing correctly.

HISYLVANIA.

Located at Trimble, O., on the K. & M. R. R., and operated by the Hisylvania Coal Co., Trimble, O. J. W. Blower, Trimble, O., is superintendent, and E. Blower, is mine boss. Slope opening to the No. 6 coal, which is 6 ft. thick, double entry system, fan ventilation, and equipped with rope haulage and electric power for mining. April 19th this mine employed 85 loaders, 31 day men and 8 machine men. Found the ventilation deficient on account of fan being out of repair. Requested the same put in good condition at once.

CARBONDALE NO. 1 AND 2.

Situated at Carbondale, O., at a station on the Mineral City Branch of the B. & O. S. W. Ry., and operated by the Carbondale Coal Co., Carbondale, O. M. A. Doolittle is superintendent, Carbondale, O. Drift openings to the No. 6 seam of coal, which is about 4 ft. thick, double entry system, and equipped with electric power for mining and hauling the coal. No. 1 visited April 1st and 48 miners, 22 day men were employed. West number one and two found in bad condition on account of poor air stoppings. Visited again on April 5th and found idle. No. 2 employs 52 miners and 21 day men. When visited was found in bad condition. Fan ventilation is in use.

DEL CARBO.

Located at Carbondale, O., on the Mineral City Branch of the B. & O. S. W. R. R., and operated by the Hocking Mining Co., Athens, O. Jacob Pollock is superintendent. Visited April 1st, and found in fair condition. Fifty-eight miners and 41 day men employed.

WINCHESTER.

Located on the Mineral Branch of the B. & O. S. W. R. R., and operated by the Giffin Coal Co., Marietta, O. Slope opening, No. 6 coal, 4 ft. thick, double entry plan, fan ventilation, electric power. Visited April 2 and 22 miners and 14 day men employed. Found in fair condition, with exception of the northeast entry, which was being driven through a fault on the single entry plan. This portion of the mine will be in bad condition if coal is found, unless they come back and drive parallel entry for ventilation or sink an air shaft.

NORTHERN FUEL.

Situated at Jacksonville, O., on the K. & M. R. R., and operated by the Northern Fuel Co., Columbus, O. W. B. Snell, Jacksonville, O., is superintendent. Shaft opening 100 ft. deep to the No. 6 seam of coal, which is worked on the double entry system, and has fan ventilation. The mine is equipped with electric power, and employs 130 miners and 36 day men, and 12 machine men. January 24th found the air shaft in bad condition with ice and bad timber. Also found the air course in bad condition for a distance of 1,700 ft., which had been falling in from time to time. Gas was found at the head of the 1st east entry, and also in No. 10 neck in same entry. February 14th visited at the request of the mine boss for the purpose of consultation and also for the purpose of inspecting a new travelling way. The company suggested driving around the defective airway. Our position was that nothing would place this mine in safe condition but an air shaft at or near the back end of the

works. March 31st was visited for the purpose of ascertaining the results of my recommendations made by me on my visit to this mine on February 14th. Found that plans were in contemplation for making a third opening. The coal is here six feet in thickness.

MEIGS COUNTY.

ROLLING MILL.

Situated at Pomeroy, O., and operated by the Peacock Coal Co., Pomeroy, O. Drift opening to the No. 8 seam of coal, which is 5 ft. thick, worked on the double entry system, and is ventilated by means of a furnace. This plant is equipped with electric power from the Charter Oak Mine, and employs 40 miners and 18 day men. Visited January 20th and found the mine very smoky, owing to the firing at all hours. Requested that action be taken at once, and restricted firing to twice a day. Also found No. 16 room on the 2d west without sufficient air, also the breakthroughs were badly gobbled up. Martin Ebersbach is superintendent, and Dan Diehl is mine boss. Requested Mr. Diehl to keep all breakthroughs clean from all obstructions.

SYRACUSE SLOPE.

Located at Syracuse, O., and operated by the Sutton Coal Co., Syracuse, O. J. B. Malone is superintendent, and Jno. Duckworth is mine boss. Slope opening to the No. 8 seam of coal, which is about 5 ft. thick, double entry plan and fan ventilation. Visited February 15th, and 46 pick miners and 20 day men were employed. On this visit found that the ventilation was insufficient on account of the engine. Gave the company 20 days to comply with the law in furnishing the volume of air required. Visited again on March 20th for the purpose of investigating as to my request of February 15th, and on this date found the mine closed down for the time being, and no inspection was made.

PITTSBURGH.

Situated at Minersville, O., on the Ohio River, and operated by the Pittsburgh Mining Co., Minersville, O. Wm. Miller is superintendent. Slope to the No. 8 seam of coal, 5 ft. in thickness, worked on the double entry system, and has furnace ventilation, the coal being mined by electric power. On February 17th was found idle on account of no orders. It employs about 35 loaders, 18 day men and 4 machine men. Visited March 21st and found a great deal of slate hanging on the haul-

way, and in an unsafe condition. Requested that it be taken down, and the haulage way placed in good condition. Also requested that an electric fan and pump be installed in the place of the steam boiler which was at the bottom of the air shaft. April 11th, again visited in regard to second opening. Gave the company 15 days in which to comply with the requirements of the mining laws in removing the boiler from the bottom of the air shaft. May 5th visited to see if my instructions of April 11th had been complied with. Found the Ohio River Power Co. could not furnish power with which to operate the fan and pump. The company agreed to take one machine and put on the fan at once.

CHARTER OAK.

Located at Pomeroy, O., on the Ohio River, and also on the C. H. V. & T. R. R., and is operated by the Peacock Coal Co., Pomeroy, O. Fred. Ebersbach, is superintendent, and Chas. All mine boss, both of Pomeroy, O. Drift opening to the No. 8 seam of coal, worked on the double entry system, and has fan ventilation. It is equipped with electric power for mining and hauling the coal. Visited April 14th and found 60 loaders, 12 pick miners and 27 day men, and 12 machine men employed. The east side of the mine was found in bad condition on account of not connecting air shaft to the mine. Gave the company 15 days to accomplish this. May 5th visited for the purpose of ascertaining whether the air shaft had been connected to the mine. The company came to the conclusion that it would be a better plan to abandon the air shaft that was sunk last fall and put down a new air shaft at the head of new north entry, which will place the mine in better condition.

HISYLVANIA.

Situated three miles north of Middleport, O., on the K. & M. R. R., and operated by the Hisylvania Coal Co., Trimble, O. J. W. Blower, Trimble, O., is superintendent, and Richard Hardon, mine boss. Drift opening to the No. 8 seam, worked on the double entry plan, and is ventilated by means of a furnace. Visited April 13th and found in good condition. This is a new opening.

SILVER RUN.

Situated four miles west of Middleport, O., on the C. H. V. & T. R. R., and operated by W. C. Russell, Middleport, O. Drift opening, No. 8 coal, 4½ ft. thick, double entry system, fan ventilation and electric power mines and hauls the coal. Visited April 12th, and employs 30 loaders, 9 day men and 4 machine men. Found in good condition.

DABNEY.

Located two miles and a half from Middleport, O., among the hills, the coal being hauled to the Ohio River and on the C. H. & D. R. R. by horse power on a tramway operated by the Monkey Run Coal Co. T. W. Jones superintendent, and Andrew Smith, mine foreman. Drift to the No. 8 seam of coal, and ventilated by a furnace. Employs 6 pick miners and 5 day men. Visited April 13th and found in fair condition.

GALLIA COUNTY.

CARL NO. 1 AND 2.

Located at Carlton, O., on the C. H. V. & T. R. R., and operated by the Carl Coal Co., Carlton, O. G. F. Carl is superintendent, and Albert Frazier is mine foreman. Drift opening to the No. 8 seam of coal, which is about 4 ft. thick, worked on the double entry system, and has furnace ventilation. Equipped with electric power for mining and hauling the coal. Visited April 12th and found in good condition. No. 1 employs 5 pick miners, 3 loaders and 13 day men. No. 2 employs 12 pick miners, 4 day men, and was found in good condition. Visited April 12th.

MUSKINGUM COUNTY.

ROSEVILLE.

Located near Roseville, O., on the C. & M. V. R. R., and operated by the Kennon Coal and Mining Co., Cleveland, O. R. T. Price is superintendent, Cleveland, O., E. A. Davis, Roseville, O., is mine boss. Drift opening to the No. 6 seam, which is 3 ft. 6 in. thick. Visited January 25th, in company with Chief Inspector of Mines, Geo. Harrison, on account of not having a second opening. Mr. Harrison deemed it necessary to reduce the number of men in accordance with the mining laws, and the number was reduced to ten men. Requested that a second opening be made at once. On February 7th was requested to again visit this mine by the Chief Inspector for the purpose of ascertaining whether a second opening had been completed by the company. On arriving on the grounds found that a second opening was but partially made, and the same could not be inspected on that account. Requested the number of men increased on this work so it could be completed in two or three days, which was agreeable to Mr. Davis, the mine foreman.

SECOND DISTRICT.

JOHN L. McDONALD,
ATHENS, MEIGS AND WASHINGTON COUNTIES, AND A
PORTION OF NOBLE.

(247)

HON. GEO. HARRISON, *Chief Inspector of Mines, Columbus, O.*

DEAR SIR:— I herewith submit to you the report of mines in the Second Mining District from the date of my appointment, May 16, 1905, until the close of the fiscal year, December 31, 1905. The time embraced by this report was of so short duration that I was unable to familiarize myself with all of the mines and their locations and conditions. In my endeavor to fully discharge the duties of Deputy Mine Inspector, I have visited the mines under my supervision as often as time and other duties of the office would permit.

With but few exceptions, the mines of this District were found in fair condition. I frequently found one in such a state of disorder that it was necessary to cease operation until put in a safe and healthy condition.

The statistical tables for this District show the following: Four (4) new mines opened, ten (10) suspended, and one (1) abandoned. One hundred and fifty-nine (159) mines visited during the time covered by this report; two (2) in District No. 3. Thirty-four (34) permanent improvements were made: Eight (8) stairways erected; seven (7) new fans installed; two (2) furnaces built; five (5) second openings made; five (5) air shafts sunk. Eight (8) sets of scales were tested, five (5) of which were found correct and three (3) incorrect.

I regret to report ten (10) fatal accidents of our brother craftsmen which occurred during the time embraced by this report, four (4) of whom were miners; three (3) of this number were killed by falls of slate and one by fall of coal. Two haulers; one (1) killed by fall of slate, the other by mine cars. Three (3) trappers; two killed by motors, one (1) by cars, and one (1) outside day laborer killed while dropping cars under hoppers. The following is list of mines in which the accidents occurred: Two in Luhrig No. 1 and No. 2 mines; two in Eclipse No. 3; two in Sedalia No. 14; one in McLeish No. 31; one in Sunday Creek No. 256, and one in Syracuse Slope. Nine of these occurred in Athens, one in Meigs County. A large per cent. of these fatalities was caused through negligence on part of the victims. The three trappers mentioned in this report were killed by their own negligence of duty. A part of the casualties could be avoided, and so much better results derived from an improved and well arranged automatic trap door placed in the mines. I would also suggest the use of brick stoppings as they are being used in some of the Sunday Creek Company, also the Luhrig mines, which are giving the very best of satisfaction and will be a great protection to the property in case of mine fire.

I am very glad to report that there were no mine fires or explosions in my District during the year.

The wage scale has been maintained throughout the District, and with but little strife. A few local strikes occurred of short duration.

The coal trade in this District during the year that has just closed has not been a prosperous one, due to there being an over-production of the output of the mines and coming in competition with cleaner seams of coal. A large per cent. of the mines did not work half-time last year.

It is with a feeling of gratitude that I express my obligations for your wise counsel, and able advice and assistance, which has proven valuable to me in the discharge of my duties.

I also wish to express my appreciation to the miners and operators for their many courtesies and expressions of good will shown to me in my visits.

Very truly yours,

JNO. L. McDONALD, Glouster, O.,

Inspector Second Mining District.

ATHENS COUNTY.

NO. 267.

Located on a switch of the T. & O. C. R. R., three miles northwest of Glouster. Operated by the Sunday Creek Co., Columbus, Ohio. John Roberts, Glouster, O., is superintendent, and Isaac Jones, of the same place, is mine boss. Slope opening, 450 feet long; No. 6 seam of coal, which is about six feet thick; worked on triple entry system. Ventilated by large Buffalo forge fan. Employs 190 miners, 56 days men and 18 machine men. Three inspections made. June 6th, mine was found in fair condition with exception of two pairs of west entries on north side; a division had been made in the air in order to give each side of mine a portion of fresh air, and same not being properly conducted management was given ten days to get same in proper condition and sprinkle motor line. June 23rd, mine was found in fair condition, former requests complied with. Sept. 21st, found mine in good condition with the exception of first west cut off, which, not being supplied with sufficient amount of air, was stopped.

NO. 275.

Situated at Chauncey, O., on the K. & M. R. R. Operated by the Sunday Creek Co., Columbus, O. Edw. Lynch, Athens, O., is superintendent, and C. L. Foraker, Glouster, O., mine boss. Shaft, 125 ft. in depth to the No. 6 seam of coal, which is about 5 to 6 feet thick. Worked on double and triple entry system; fan ventilation. Coal is mined and hauled by electricity. Employs 150 mines, 32 day hands and 14 machine men. On August 25th and October 18th mine was found in good condition.

NO. 266.

Located at Hollister, O., on a branch of the T. & O. C. R. R. Operated by the Sunday Creek Co., Columbus, O. Shaft, 90 ft. deep, No. 6 seam, which is 6 ft. thick. Ventilated by 16 ft. Buffalo Forge fan. Jno. Roberts is superintendent, and A. Roberts mine boss, both of Glouster, O. One hundred and thirty-seven miners, 14 cutters and 42 day men employed. Suspended operation on June 2nd for some unknown cause, and resumed operation Dec. 5th. On Dec. 21st mine was found in fair condition, considering the long time it was idle. The ladders in the escape-ment shaft were found in bad condition; requested them repaired at once, also some brick stoppings placed between dark entry and stable, and check doors placed on 18th west and 16th east entries to convey the air into the rooms.

NO. 311.

Located at Oakdale, O., on the C., S. & H. R. R. Operated by the Sunday Creek Co., Columbus, O. Edw. Muir, Glouster, O., is superin-

tendent, and Newbert Spurrier, Oakdale, O., mine boss. Shaft, 90 ft. deep, No. 6 seam of coal, about 6 ft. thick. Worked on the double entry system. Ventilated by two fans; employs 70 miners, 8 cutters, 33 day men. Electric machines are used to cut the coal, which is hauled to the bottom by a motor. Four visits made. July 3rd, found mine in fair condition; requested traveling way to second opening cleaned out and finger boards placed at different places. July 29th, tested one set of railroad scales and found them weighing correctly. Sept. 20th and Dec. 27th, mine found in good condition.

NO. 281.

Located two miles west of Jacksonville, O., on a branch of the K. & M. R. R. Operated by the Sunday Creek Co., Columbus, O. Mell Rob, Jacksonville, O., is superintendent, and Thos. Williams, Modoc, O., mine boss. Shaft, 125 feet in depth. Worked on triple entry system and is ventilated by large Buffalo Forge fan. Employs 160 miners, 14 machine men and 53 day men. The coal is cut and hauled by electricity. Two inspections made, June 30th and Oct. 2nd, and mine found in good condition.

NO. 10.

Located at Derthick, O., on a branch of the T. & O. C. R. R. Operated by the Sunday Creek Co., Columbus, O. John F. Roberts, Derthick, O., is superintendent, and Walter Hayden, Derthick, O., mine boss. Shaft opening, 110 feet in depth, to the No. 6 seam of coal. Coal at this point is about six feet thick. Worked on double entry system and ventilated by a 20 ft. Buffalo Forge fan. Electric machines mine the coal, which is hauled to the bottom by the same power; 195 miners, 15 cutters and 58 day men employed. On July 5th, motor line was found very dusty; requested it sprinkled at once, also manholes cleaned out along traveling way. July 31st, found No. 3 room on third west entry very poorly posted, also some loose top on third north entry; requested same taken down or posted. Otherwise, mine was found in good condition. Aug. 26th, tested two sets of railroad scales; one set was found correct, one incorrect. They were adjusted at once. On Oct. 20th, found insufficient amount of air on north side of the South, on account of bad stoppings and doors. Stopped several rooms which were ahead of air. Was requested to investigate the traveling way to ascertain whether my requests had been complied with; found they had not been, and gave management 10 days to do so and improve the ventilation. On Dec. 1st and 2nd, the North side was found in good condition. Found the manholes had been cleaned and electric lights placed along motor line. Ventilation improved by placing a trapper on the main motor door.

NO. 10 X.

Located at Orbiston, O., on the C., H. V. & T. R. R. Operated by the Sunday Creek Co., Columbus, O. W. B. Burnell, Orbiston, O., is superintendent. Slope opening, worked on the double and triple entry system. Penetrates the No. 6 seam of coal, which is about 6 ft. in thickness at this point. The mine is equipped with chain and motor haulage. The coal is mined by electric power; 240 miners, 24 cutters and 66 day hands employed. On July 6th and August 10th, mine was found in fair condition. On Nov. 20th and 21st, in fair condition with exception of 10th and 11th east entries, on which the rooms were very poorly ventilated. Ordered check doors placed on entries to convey the air into the rooms. Also stopped some rooms which were ahead of air.

NO. 209.

Located on Sugar Creek, about three miles north of Athens, O., on the A. A. & C. R. R. This is a new shaft mine, opened up last year, into the No. 6 seam of coal, which is very irregular at this point, and from 4 to 5½ ft. thick. The rock comes down in places, cutting the top coal almost out. Operated by the Sunday Creek Co., Columbus, O. Edw. Lynch, Athens, O., is superintendent, and Chas. Coleman, Grosvenor, O., mine boss. Shaft, 255 feet deep, ventilated by large Buffalo fan. Coal is dumped over a steel tippie. Mine is equipped with latest modern machinery. Slate and refuse is being hoisted from the mine and dumped on the outside in order to make room and space for a large volume of air to circulate through the mine. Brick is being used for stoppings instead of the old system. Employs 137 loaders, 16 cutters and 59 day men. Three inspections made. On May 31st, found great deal of fire damp, but well taken care of by the company. Requested gates hung on hoisting shaft at first landing. On July 27th, found considerable gas in Rooms No. 2 and No. 3 on second east entry. The places were driven in advance of the other rooms, and were stopped until such times as the other rooms were driven up and breakthroughs made. On Nov. 22nd was making an examination, when word was sent for the men to come out, that the fan was stopped. We learned on coming out that the feed pump to the boilers was out of order, and fires had to be drawn from under the boilers. On Nov. 23rd, mine was found in good condition; requested breakthroughs made more regular between main entries and No. 1 room in order to give the air a chance to circulate through the rooms.

NO. 211.

Located on Sugar Creek, about three miles north of Athens, O., on the A. A. & C. R. R. Operated by the Sunday Creek Co., Columbus, O.

Edw. Lynch, Athens, O., is superintendent, and M. Collins, same place, is mine boss. Shaft opening, 240 feet deep, into the No. 6 seam of coal, which is about $5\frac{1}{2}$ feet thick. Ventilated by fan. Coal is dumped over a temporary tippie, as the new steel tippie is not erected yet. This mine will be modern in every respect. Thirty-eight loaders, 4 cutters and 21 day men employed. On June 1st, August 24th, and Nov. 23rd, found mine in good condition.

NO. 210.

Located on Sugar Creek, on the A. A. & C. R. R., two miles north of Athens, O. Owned and operated by the Sunday Creek Co., Columbus, O. Edw. Lynch, Athens, O., is superintendent, and J. Golding, same place, is mine boss. This shaft was opened in 1904, and is 196 ft. deep to the No. 6 seam of coal, which is 4 to 6 feet thick at this point. Ventilated by two fans. The mine is being equipped with all the latest modern machinery, and has a steel tippie of the very finest type. The slate and unmarketable coal will be hoisted from the mine and a stationary engine used to haul it to dump, which will be on the hill side. Employs 60 loaders, 8 cutters and 33 day men. Three inspections made during the year, June 2nd, August 23rd, and November 24th, and mine found in good condition on each visit.

NO. 201.

Located at Floodwood, O., on the C., H. V. & T. R. R. Operated by the Sunday Creek Co., Columbus, O. Chas. Monks, Nelsonville, O., is superintendent, and Thos. Matheny, Floodwood, O., mine boss. Shaft opening, 70 feet in depth to the No. 6 seam of coal, which is about 6 feet thick. Worked on the triple entry system; fan ventilation. The coal is cut and hauled by electricity. June 13, mine idle, on account of some local grievance. Aug. 18th, mine was found in poor condition; found some very bad top on first and second east, which was requested taken down. Ventilation was deficient on account of velocity of fan not being fast enough; ordered fan speeded up faster, also doors and brattices repaired. On Oct. 19th, mine again found idle on account of no cars. Employs 150 loads, 16 cutters and 44 day men.

NO. 204, OR KIMBERLY NOS. 1, 7 AND 8.

Located at Boyle's Crossing on the C., H. V. & T. R. R. Operated by the Sunday Creek Co., Columbus, O. Chas. Monks, Nelsonville, O., is superintendent, and Frank Murphy, same place, is mine boss. Drift openings into the No. 6 seam of coal, which vary in thickness from $3\frac{1}{2}$ to $5\frac{1}{2}$ feet. No. 1 has been the principal opening, the coal from No. 7 and No. 8 being hauled through No. 1; preparations are being made, however, to haul the coal by a closer route and abandon No. 1. No. 7 will be the

principal opening, and is ventilated by furnace. As both mines are connected they employ 65 loaders, 8 cutters, 27 day men. Coal is cut and hauled by electricity. On June 13th mine was found in fair condition. On Sept. 28th, the volume of air was insufficient on account of furnace not being properly fired; requested same fired so as to produce sufficient air.

NO. 205.

Located one and one-half miles southwest of Nelsonville, O., on the C., H. V. & T. R. R. Operated by the Sunday Creek Co., Columbus, O. Chas. Monks, Nelsonville, O., is superintendent, and Jos. Barber, same place, is mine boss. Slope opening to the No. 6 seam of coal, which is from 5 to 6 feet thick; worked on the double entry system and ventilated by fan. Is equipped with rope haulage. Coal is mined by machines, operated by compressed air. Employs 158 loaders, 20 cutters and 75 day men; also employ 15 to 20 slate men who do nothing but take down and remove faulty roof. On May 18th, mine was found idle; no trade. On June 14th, was found in fair condition. Sept. 29th, found large volume of air, but the mine was kept in a cloudy condition caused from exhaust from the machines and so much shooting; requested that some of the blasting of the slate be done at night. On Nov. 14th, tested one set of railroad scales and found them weighing correctly.

NO. 254.

Located at Jacksonville, O., on the T. & O. C. R. R. Operated by the Sunday Creek Co., Columbus, O. Daniel McBryde, Glouster, O., is superintendent, and Thos. McMann, same place, is mine boss. Shaft opening, 110 feet deep to the No. 6 seam of coal, 6 feet thick; worked on the double entry system and is ventilated by two fans. Rope haulage, coal cut by electric power; 125 loaders, 12 cutters and 50 day men employed. On June 5th, mine was found idle on account of no cars. June 19th and November 14th, mine was found in good condition.

NO. 255.

Located two and one-half miles southwest of Jacksonville, O., on a branch of the K. & M. R. R. Operated by the Sunday Creek Co., Columbus, O. Mel Robb, Jacksonville, O., is superintendent. Shaft opening to the No 6 seam of coal, 155 feet deep. Coal is about six feet thick; worked on triple entry system; ventilated by fan. Coal is cut by electric power, and preparations are being made to haul the coal with a motor. Employs 88 loaders, 8 cutters, and 38 day men. On August 7th and Dec. 12th, found mine in fair condition.

NO. 256.

Located at Glouster, O., on the T. & O. C. R. R. Operated by the Sunday Creek Co., Columbus, O. Edw. Muir, Glouster, O., is superintendent, and Thos. Murphy, same place, is mine boss. Shaft opening, 90 feet deep, to the No. 6 seam of coal, which is about 6 feet thick. Worked on the double and triple entry system. The coal is cut, and hauled to the bottom, by electric power. Ventilated by 16 ft. Buffalo Forge fan. Employs 200 loaders, 18 cutters and 63 day men. This mine was suspended from Jan. 26th to May 23rd, chief cause being that on Jan. 25th a fire originated in Mine No. 252; being connected with this mine, and the fire getting beyond control, it was necessary to seal both mines to smother the fire. Re-opened in April, and number of brick stoppings were put in between the two mines. When this was done, the fire was sealed from No. 256. In the meantime, a fire originated on the north side of No. 256. When located, it proved to be at an electric pump at head of north entry. No. 252 was re-opened sometime in July, machinery taken out, and preparations made to clean out the shaft. When within fourteen feet of the bottom, smoke was discovered coming from the south side of the mine. The seal was replaced and has not been removed since. Five visits were made to No. 256 during the time covered by this report. On May 29th, mine found in fair condition, considering the long time it was idle. Requested that another trapper be placed at 7 and 8 east on straight south. August 9th, found former request complied with and mine in good condition. Visit on Sept. 17th was for purpose of investigating brick walls between No. 256 and No. 252, which were found in fair condition; found some black damp leaking through in one or two places; they were stopped at once. On Oct. 3rd, was called to this mine to investigate the death of Leonard Eberts, who was killed on 8th west entry by a trip of empty cars. Dec. 28th, mine was found in fair condition, with exception of 5th and 6th west entries; the air course being partly closed in by fall of top, board had been taken off the brattice, which caused a split in the current, but the air on motor line was lost to the men that worked on these two entries. Ordered door placed at end of motor switch between 5th and 6th west to carry waste air up to the head of entries.

McLEISH NO. 31.

Located three miles north of Glouster, O., on the C., S. & H. R. R. Operated by the McLeish Coal Co., Columbus, O. John Palmer, Glouster, O., is superintendent and mine boss. Shaft opening, 80 feet in depth, to the No. 6 seam. The coal is very irregular at this point; worked on the double entry system; 60 loaders, 6 cutters and 24 day men employed. Coal is cut and hauled by electric power. Fan ventilation. The mine was suspended for about three months on account of no market for coal. On June 8th and August 8th mine was found idle and no inspec-

tion made. Oct. 27th, found in fair condition. Nov. 28th, investigated fatal accident of Rover Morgan, who was killed by motor on the north motor switch. He was employed as a trapper; was injured on Nov. 25th, and died same day, after having his leg amputated.

CRESCENT NO. 24.

Located south of Jacksonville, O., on the K. & M. R. R. Operated by the Northern Fuel Co., Columbus, O. D. S. Williams, Jacksonville, O., is superintendent, and Jno. Cox, same place, is mine boss. Shaft opening, 109 feet deep to No 6 seam, which is 6 ft. thick. Worked on the double and triple entry system. Ventilated by two fans. A steam fan is located on top of the air shaft, and an electric fan is used near the working places as an additional means of supplying ventilation to the mine. The coal is cut by electric power, and hauled to the bottom by two motors. One hundred and sixty-two loaders, 14 cutters, 67 day hands are employed. On June 28th, mine was found in fair condition. The escapement shaft was sunk near face of working places, but had not made communication, as mistake had been made in surveying. On Sept. 12th, mine was found in poor condition, owing to squeeze on the 11th and 12th west entries, almost closing the air course and cutting the volume of air from 38,800 cubic feet to 17,000 cubic feet. There was no other way around only to drive pair of north and south entries, which were started and double shifted on both ends, but new air shaft had not yet been found. On Dec. 15th, mine was found in good condition; the squeeze had settled and the entries driven around. Forty-five rooms were being worked that the squeeze had tied up, volume of air was increased to 44,400 cubic feet, escapement shaft was located and communication made. The shaft was provided with steps, which was a great relief to men, as well as management. Mine has been started on triple entry plan and the system of handling coal has been improved.

HISYLVANIA NO. 23.

Located at Trimble, O., on the T. & O. C. R. R. Operated by the Hisylvania Coal Co., Trimble, O. James Richards, Glouster, O., is superintendent, and Enoch Blower, Trimble, O., mine boss. Slope opening to the No. 6 seam of coal, which is six feet thick. Worked on double entry system and has fan ventilation. The mine is equipped with chain and motor haulage; coal is cut by electric power. Employs 84 loaders, 8 cutters, and 31 day men. On June 27th, mine was found in fair condition. July 10th, No. 7 and No. 8 rooms on 7th west entry were without ventilation. Room No. 10 was cut through to the other entry, giving the air a short cut and leaving these two rooms without any ventilation. Ordered No. 10 room closed, or the two rooms back of it. Said room was closed at once. Complaint was made about the traveling way, there

being no other way for the men to travel except the slope, which was in bad condition. Company wished to keep men from following the trips out. On August 1st, in company with Chief Inspector Harrison, investigated second opening and traveling way, which was found in bad condition. Company agreed to make everything convenient as possible for men to get out of shaft in case of accident; also to clean out the slope, remove the steam pipes, make traveling way along one side of the slope (which is of proper width to do same), and stop the men from following a moving trip. On Sept. 12th, ventilation was insufficient in some places; requested fan speeded up and brattices repaired. On Oct. 23rd, tested one set of railroad scales, which were found weighing a little heavy. November 10th, mine was found in fair condition, with exception of three rooms on 9th east, which were driven in advance of breakthroughs. Ordered them stopped until the other rooms were driven up and breakthroughs made. Found former requests had been complied with and good traveling way made along the slope.

SEDALIA NO. 14.

Located at Glouster, O., on the T. & O. C. R. R. Operated by the Sedalia Coal Co., Glouster, O. Jno. Palmer, Glouster, O., is superintendent, and Chas. Jones, Glouster, O., mine boss. Slope opening to the No. 7 seam of coal, 5 ft. thick. Worked on double entry system; has fan ventilation. Coal is mined by electric power; rope and motor haulage. Employs 42 loaders, 8 cutters and 28 day men. On July 26th mine was found in fair condition; requested that it be cleaned out from around bottom of air shaft. On August 19th, investigated death of John Powell, who was killed on first east entry in No. 5 room by fall of slate. Sept. 22nd, tested one set of Hopper scales, which were found weighing correctly. Oct. 4th, mine was found in bad condition on new territory, owing to motor door being in bad shape and not having proper attention; requested an attendant placed there at once, also doors and brattices repaired. Nov. 13th, investigated death of O. L. Collins, who was killed on first east entry in No. 6 room by fall of slate while removing posts for the machine to cut his place. Former requests had not been complied with in regard to getting the mine in a healthy condition. Dec. 29th, the mine was still in the same condition and men were brought out. Jan. 1st, 1906, by request of mine boss, visited mine to ascertain whether mine was in proper condition for men to resume work; found volume of air had been increased three-fourths, and changes had been made in the trap doors, which improved the ventilation. Mine resumed work on the following day.

BROADWELL.

Located at Broadwell, O., on the M., C. & C. R. R. Operated by O. B. Gard Marietta, O., who is superintendent, and S. C. Holdcroft,

Broadwell, O., mine boss. Drift opening to the No. 8 seam of coal, which is from 8 to 11 feet thick; separated in the center by three feet of slate and unmarketable coal. Worked on double entry system and ventilated by fan. Coal is mined by an electric machine; rope haulage. Employs 13 loaders, 5 day men. On Aug. 21st and Nov. 27th, mine was found in good condition.

WELLS NO. 2.

Located two miles east of Amesville, O., on the M., C. & C. R. R. Operated by the Peacock Coal Co., Amesville, O. M. Ralston, Sharpsburg, O., is superintendent and mine foreman. Drift opening to No. 8 seam of coal, which is 8 feet thick; about 5 feet of marketable after it is separated. Worked on the single entry system and has natural ventilation at present. Mine was only being operated for house coal on my visit. Aug. 22nd was found in fair condition.

SCHEULER.

Located at Sharpsburg, O., on the M., C. & C. R. R. Operated by Jacob Scheuler, Sharpsburg, O., who is superintendent and mine boss. Drift opening to No. 8 seam of coal, which is 8 feet thick; separated in the center by a three-foot layer of slate and stone. Worked on double entry system, ventilated by fan. Coal is mined by electric machines. Employs 12 loaders and 5 day hands. Aug. 22nd, mine was found in good condition. Tested one set of Hopper scales and found them correct.

FEDERAL VALLEY NO. 1.

Located one mile north of Broadwell, O., on the M. C. & C. R. R. Operated by the Consumers Coal Co., Columbus, O. (formerly the Twin Vein Coal Co.) J. C. Bates, Broadwell, O., is superintendent and mine boss. Slope opening to the No. 8 seam of coal, which is 8 feet thick; separated in the middle by 2 feet of slate and stone. Worked on the double entry system, and ventilation by fan. Coal is mined by electric machines; rope haulage. Mine was suspended greater part of the year. On Aug. 21st, company had just got the water pumped out of the mine and was making preparations to run coal. Nov. 27th, mine was found idle; no cars. The mines in this valley do not have the proper transportation for their coal. The Black Diamond, Utley and Big Run mines are suspended mostly for that reason.

LUHRIG NOS. 1, 2 AND 3.

Located at Luhrig, O., on the B. & O. S. W. R. R. Operated by the Luhrig Coal Co., Cincinnati, O. A. J. Laverty, Athens, O., is superintendent, and D. K. Nutter, Luhrig, O., is mine boss. Shaft opening, 135 feet in depth, to the No 6 seam of coal, 5 to 6 feet thick. Worked on

double entry system and is ventilated by 20 foot Buffalo Forge fan. Coal is mined by electric power and hauled by motors. Employs 253 loaders, 22 cutters and 104 day men. Five visits were made. On May 17th, in company with Chief Inspector Harrison, Thos. Waters, Inspector of First District, and Jas. Pritchard, Inspector of Third District, made examination of some faulty top in No. 1 mine, which was of a limey and gaseous nature. Some of it was being worked on long wall system, driving three rooms in abreast, and seemingly holding it better than in the narrow places. Where there was a continual current of air it was harder to hold or keep up, as it seemed to creep from around the posts. The object in making this examination was that the Chief Inspector had been called to the Cawthorn mine in Hocking County, operated by the New Pittsburg Coal Co., to ascertain whether a suspended part of that mine would be safe for the workmen owing to the top being of a faulty nature and would be considered a very dangerous top under the present mode of mining. He called on the two inspectors above mentioned, and myself, to make the examination; we did so, and were informed that some bad top was being worked in the Luhrig mines, which bore no relation to that of the Cawthorn mine. On June 20th and 21st was called to investigate the air. Company had removed an old fan from the top of the No. 2 air shaft for the purpose of installing a new fan, the men refusing to work until it was erected. Two additional fans were on the inside of the mine, which gave as good results as that prior to the removal of the old fan, and the men resumed work. On July 8th, investigated death of Wm. Stagerwald, a trapper, who was killed at his door. He fell asleep and the motor caught him. August 2nd, was called to investigate death of Soie Chesser, a trapper, who was killed on the 18th west entry by stepping in between a loaded trip of cars. On Oct. 10th and 12th, found new fan in operation and conditions not so very good owing to old wooden brattices giving away. Quite a number had been replaced with brick, and brick stoppings were still being continued. Requested an extra force be placed on the brattices, which was assured.

DOANVILLE NO. 1.

Located at Doanville, O., on the C., H. V. & T. R. R. Operated by the C. & H. C. & I. Co., New Straitsville, O. John Lax, Nelsonville, O., is superintendent and mine boss. Slope opening to the No. 6 seam, which is about 6 feet thick; worked on the double entry system. Coal is cut by electric machines; rope haulage. Employs 100 loaders, 40 day men, 10 cutters. May 18th, mine was found idle. July 11th and Oct. 5th, mine found in good condition.

DOANVILLE NO. 1-A.

Located at Doanville, O. Operated by same company as No. 1. Drift opening to the No. 7 seam, 4 feet thick; worked on double entry

system, and ventilated by furnace. Employs 10 miners, 6 day men, and 4 cutters. Two inspections made, May 18th and Oct. 5th, and mine found in fair condition. Mine was suspended part of the year owing to no trade.

IMPERIAL NO. 1.

Located four miles southeast of Nelsonville, O., on a branch of the C., H. V. & T. R. R. Operated by the Imperial Coal Co., Columbus, O. J. A. Murphy, Nelsonville, O., is superintendent, and W. N. Murphy, same place, is mine boss. Slope opening to the No. 6 seam, which is 6 ft. thick. Worked on the double entry system and ventilated by fan. Equipped with chain and motor haulage. The coal is cut by electric power; 145 loaders, 34 days men and 14 cutters employed. On July 13th and Oct. 17th, found mine in excellent condition.

JUNIPER NO. 3.

Located at Buchtel, O., on the C., H. V. & T. R. R. Operated by the York Clay & Mining Co., Nelsonville, O. Drift opening to the No. 6 seam, which is about six feet thick; worked on double entry system and ventilated by furnace. Coal is cut and hauled by electric power. Employs 53 miners, 15 day men and 4 cutters. July 7th, mine found idle on account of no trade. Sept. 23rd, found in bad condition. The breakthroughs between entries were stopped up with bone coal and slate, making it impossible to get sufficient air at the head of entries to comply with the law. Ordered these stoppings renewed and breakthroughs made at the 60 foot mark in rooms. Oct. 6th, found breakthroughs made regular, but volume of air was not increased. Gave company four days to get the air up to standard; at the end of that time was notified by the miners that conditions were improved. By request of the Mine Committee, tested scales on above date and found them incorrect owing to pan coming in contact with a cross timber on which the apron is fastened; adjusted at once.

NEW YORK NO. 31.

Located one mile east of Buchtel, O., on the C., H. V. & T. R. R. Operated by the New York Coal Co., Columbus, O. Frank Patton, Nelsonville, O., is superintendent, and R. R. Graves, same place, is mine boss. Drift opening, No. 6 seam, which is from 5 to 6 feet thick. Worked on the double entry system and ventilated by fan. Coal is cut by electric machines. Equipped with motor and chain haulage. Employs 145 loaders, 33 day men and 14 cutters. June 7th, investigated fatal accident of Geo. Culp, a driver, who was killed on the second east entry by fall of slate. Ventilation was in fair condition. There is from 2 to 3 feet of soapstone lying between the coal and rock. This comes down with the coal and makes it very dangerous. There is also a lot of gob, which obstructs the air courses. On Aug. 11th and Nov. 21st, mine was in fair condition.

Requested that split be made in the volume of air in order to give each side of mine the benefit of fresh air.

ECLIPSE NO. 3.

Located between Athens and Chauncey, O., on the C., H. V. & T. R. R. Operated by the Johnson Coal Mining Co., Columbus, O. J. W. Taylor, Athens, O., is superintendent, and K. T. Miller, same place, is mine boss. Shaft opening, 178 feet, to the No. 6 seam of coal, which at this point is six feet thick. Worked on triple entry system, and ventilated by large Buffalo Forge fan. Coal is cut and hauled by electric power. Employs 160 loaders, 44 day men and 18 cutters. June 9th, found mine in good condition. Crelaus Williams was injured June 2nd while dropping in cars to the tippie, and died June 5th. Sept. 18th, mine was found in excellent condition. Great care is taken by the managers of this mine both for the protection of the workmen and the property. Breakthroughs are made very regular and through 100 ft. pillars in order to give circulation of air through the rooms to remove fire damp that may accumulate. Oct. 11th, investigated death of Howard Ross, who was killed at the face of 4th east entry. Dec. 11th, mine was found in good condition. By request of Mine Committee, tested the scales and found pan in which the coal is weighed, binding on the shoots; adjusted at once.

MAPLE HILL.

Located three miles east of Nelsonville, O., on the C., H. V. & T. R. R. Operated by the Maple Hill Coal Co., Nelsonville, O. Joshua Spencer is superintendent, and Geo. McKee mine boss, both of Nelsonville, O. Slope opening to the No. 6 seam of coal, which is about 6 feet thick. Worked on the double entry system and ventilated by fan. Coal is cut by electric machines; rope haulage. Employs 94 loaders, 33 day men and 10 cutters. June 26th, found mine suspended owing to having no market for coal. Aug. 17th, west side of mine had no ventilation on account of air course being closed in; requested that main entry be made the air course and that door be placed between 11th and 12th west entries. Oct. 16th, found former requests had been complied with and mine in fair condition.

NEW YORK NO. 1 OR HALBERT.

Located at West Floodwood, on the C., H. V. & T. R. R. Operated by the New York Coal Co., Columbus, O. Frank Patton, Nelsonville, O., is superintendent, and E. E. Shaffer, same place, is mine boss. Drift opening to the No. 6 seam of coal, which is from 4 to 5 feet thick. Coal is mined by electric machines; 55 miners, 31 day men and 6 cutters are employed. July 12th, mine was found idle. Had been suspended since April 1st. Sept. 21st, found mine had resumed operation and was in fair condition.

SILCOTT OR WEST FLOODWOOD.

Located at West Floodwood on the C., H. V. & T. R. R. Operated by Geo. Silcott, Nelsonville, O. O. M. Reynolds, Floodwood, O., is mine boss. Drift opening to No. 6 seam of coal, which is about 6 feet thick. The coal is mined with picks, or mostly by solid shooting, and hauled by mules. Ventilated by furnace; 18 miners, 10 day hands employed. June 26th, was called to this mine to investigate the air. Found greater amount of air not reaching the working places; ordered two doors hung and a breakthrough cleaned out, which had been filled up by the miners. Furnace formerly was not fired until work time; ordered it fired at least two hours before. July 12th, found former requests complied with and mine in fair condition.

WELLS.

Located at Kimberly, O., on the C., H. V. & T. R. R. Operated by A. J. Wells, Kimberly, O. W. A. Goodspeed, Nelsonville, O., is superintendent and mine boss. Drift opening to No. 6 seam of coal, 6 feet thick. Coal is mined with picks; employ 15 miners and 3 day men. July 12th, found mine idle and made no inspection. Sept. 27th, was in fair condition. The old opening is ventilated by fire basket, and new opening has natural ventilation.

NEW PITTSBURG NO. 9.

Located about four miles north of Athens, O., on the C., H. V. & T. R. R. Operated by the New Pittsburg Coal Co., Columbus, O. C. H. Thompson, Athens, O., is superintendent and mine boss. This is a new shaft opening, 102 feet in depth, to the No. 6 seam of coal, which is 5½ feet thick at this point. Is being equipped with the latest modern machinery. A large Buffalo Forge fan will be the ventilating medium. Employs 8 loaders, 8 day men and 2 cutters. On Oct. 9th, operations were suspended on inside of mine until tipple was completed.

CARBONDALE NO. 2.

Located at Carbondale, O., on the Mineral City Branch of the B. & O. S. W. R. R. Operated by the Carbondale Coal Co., Carbondale, O. M. A. Doolittle is superintendent, and E. J. Dootlittle mine boss, both of Carbondale, O. Drift opening to the No. 6 seam of coal, which is about four feet thick. Worked on double entry system and ventilated by fan. Coal is mined by electric power, and has chain and motor haulage. Employs 42 loaders, 22 day men and 6 cutters. Sept. 26th, mine was found in fair condition, with exception of North cut off, where air current was not sufficient; ordered stoppings repaired at once. Dec. 18th, by request of Mine Committee, made an examination of traveling way to second opening, which was found in bad condition; on account of water and

falls of top it was almost impassable. Ventilation in some parts of mine was insufficient. Gave company two weeks to place the mine in lawful condition.

CARBONDALE NO. 3.

Located at Carbondale, O., on the Mineral City Branch of the B. & O. S. W. R. R. Operated by the Carbondale Coal Co., Carbondale, O. M. A. Doolittle is superintendent, and F. D. Doolittle mine boss, both of Carbondale, O. Drift opening to No. 6 seam of coal, which is from 4 to 5 feet thick; worked on double entry system and is ventilated by fan. Coal is cut and hauled by electric power. Employs 80 loaders, 26 day men and 8 cutters. On Aug. 4th, mine was found in bad condition on account of bad stoppings and doors. Company was given a reasonable time to get the mine in proper condition. Oct. 25th, found former requests complied with and mine in an improved condition.

MOOR OR HOCKING.

Located at Carbondale, O., on the Mineral City Branch of the B. & O. S. W. R. R. Operated by Hocking Mining Co., Athens, O. J. Pollock, Athens, O., is superintendent and mine boss. Slope opening to the No. 6 seam of coal, which is from four to four and one-half feet thick; worked on the double entry plan and ventilated by fan. Coal is cut by electric machines; has rope haulage. Employs 75 loaders, 27 day men and 14 cutters. On August 3rd and Oct. 24th mine was found in excellent condition.

WINCHESTER.

Located at Carbondale, O., on the Mineral City Branch of the B. & O. S. W. R. R. Operated by the Winchester Coal Co., Marietta, O. R. K. Giffin, Mineral, O., is superintendent, and H. D. Albaugh, Carbondale, O., mine boss. Slope opening to the No. 6 seam, which is from 3½ to 4 feet thick. Worked on double entry system. Coal is cut by electric machines. Equipped with rope haulage; ventilation by fan. Employs 28 loaders, 15 day men and 6 cutters. Aug. 3rd, found mine in fair condition. This mine came in contact with a rock fault, cutting the coal entirely out; single entry was driven through the rock, 400 feet, and territory was opened which had but the one opening. Company agreed to drive the 1st and 2nd west entries to the crop line and put down a shaft for escapement way. Oct. 24th, found entries that were being driven to crop line stopped on account of rock fault. Company agreed to locate and sink a shaft near the working places. Dec. 19th, found mine suspended for some unknown cause.

SHINGLER.

Located at Carbondale, O., on the Mineral City Branch of the B. & O. S. W. R. R. Operated by Wm. Shingler, Carbondale, O. This is a

new drift opening to the No. 6 seam of coal, which is about 4 feet thick. An electric machine is used to mine the coal. Employs 6 miners, 2 day men and 2 cutters. The mine is not developed to any extent. Has natural ventilation. Dec. 19th, found idle.

NO. 202.

Located at Glouster, O., on J. V. Stoëckien farm. This is a new shaft opening, 22 feet in depth to the No. 7 seam of coal, 4 feet thick. Will be worked on the double entry plan and mined with picks. Is under the personal supervision of L. Jonas, Glouster, O. Two men are employed at present. Coal will be hauled to the market by wagons.

MEIGS COUNTY.

BUCKEYE.

Located at Pomeroy, O., and operated by the Buckeye Salt Co., Pomeroy, O. Ed. Weeks, Pomeroy, O., is superintendent and mine foreman. Drift opening to the No. 8 seam of coal, which is worked on double entry plan; has natural ventilation. Coal is mined mostly by solid shooting. Employs 16 miners, 7 day hands. On July 18th and Nov. 2nd, mine found in fair condition.

PITTSBURGH.

Located at Minersville, O., on the Ohio River, and is operated by the Pittsburg Coal Co., Minersville, O. Wm. Miller, Minersville, O., is superintendent, and Thos. Middleton, Middleport, O., mine boss. Slope opening to first hill, drift into second. No. 8 seam of coal, $4\frac{1}{2}$ ft. thick. Worked on double entry system and ventilated by fan. Coal is cut by electric machines, hauled to bottom of slope by mules, and to tippie by means of a rope. Employs 45 loaders, 19 day men and 10 cutters. July 18th, found conditions very bad. The only ventilating apparatus they had was a boiler at bottom of air shaft, which was an obstruction to the escapement way. Demanded that the law be complied with and gave Company a reasonable time to provide lawful second opening and sufficient amount of air. Aug. 14th, found new fan erected, but not in operation owing to delay in shipment of the belt. Steam boiler was still at bottom of air shaft; were given ten days to remove boiler and equip shaft with ladders or steps. Aug. 28th, posted notice in mine reducing force to ten men until law was complied with. Sept. 5th, was called by the Company to remove notice, and on examination found the new electric

fan in operation, boiler removed from bottom of air shaft and good ladder placed in same. Mine resumed operation on same day. Dec. 5th, mine was found in good condition.

ROCKVILLE OR KINGS.

Located three miles north of Middleport, O., on the K. & M R. R. Operated by the Hisylvania Coal Co., Trimble, O. Chas. Richards, Middleport, O., is superintendent, and R. Harden, same place, is mine boss. Drift opening to the No. 8 seam, 5 feet thick; worked on double entry system and ventilated by furnace. Coal is cut by electric machines and hauled to the tipple by motor. August 31st, found mine had been suspended since April on account of fire. New tipple was being built and electric plant installed. Employs 38 loaders, 16 day men and 4 cutters. Oct. 30th, mine in fair condition.

COAL RIDGE.

Located at Carrs Run in Pomeroy, O. Operated by the Coal Ridge Salt Co., Pomeroy, O. Drift opening to the No. 8 seam, $4\frac{1}{2}$ ft. thick; worked on double entry system and ventilated by furnace. Dan Daniels, Pomroy, O., is superintendent and mine boss. Employs 15 miners and 5 day men. Coal is mined with picks. Aug. 15th, mine was found in bad condition owing to the new furnace receiving volume of air from some old opening, leaving the working places without ventilation. Gave company four days to get the mine in a lawful condition. Nov. 21st, with the exception of air course being almost choked up in one place, mine was in fair condition.

ROLLING MILL.

Located at Pomeroy, O. Operated by the Peacock Coal Co., Pomeroy, O. Drift opening to No. 8 seam of coal, $4\frac{1}{2}$ feet thick; worked on double entry system; has furnace ventilation. The coal is mined with electric machines and has motor haulage; 54 loaders, 20 day men and 10 cutters employed. Aug. 16th, mine found in fair condition. Dec. 7th, was in poor condition on account of doors and stoppings; requested same repaired in order to increase volume of air.

CHARTER OAK.

Located at Pomeroy, O., on the Ohio River, also on the C., H. V. & T. R. R. Operated by the Peacock Coal Co., Pomeroy, O. Wm. Ebersbach, Pomeroy, O., is superintendent and mine boss. Drift opening to the No. 8 seam of coal, which is about 4 feet thick; worked on double entry system and is ventilated by fan. Employs 65 loaders, 35 day men and 16 cutters. The mine is equipped with all the latest modern machinery; new electric fan has been installed. This mine also furnishes the

"Rolling Mill" mine with electric power. This is a River mine, and the Rolling Mill a Railroad mine; motor haulage ways are so connected that coal can be loaded from both mines over either tippie, which is quite an advantage. When river trade is dull, Company can load railroad coal. July 20th, mine was found in bad condition; demanded that law be complied with within reasonable time, as communication had not been made to an air shaft which was sunk to improve ventilation. Aug. 29th, in company with the Chief Inspector, we found communications to air shaft had been made, but conditions were worse. Could only get 2,000 feet of air at the inlet, and could not get register in any other part of the mine. The throat of the fan was entirely too small, doors were hung the wrong way, stoppings in bad condition, and second opening was not available. Closed mine until put in lawful condition. Sept. 1st, found ventilation improved wonderfully. Could get from eight to nine thousand feet of air anywhere in the mine at face of entries, but fan was old style and not reliable. Company agreed to equip the mine with new fan and put stairway in air shaft for escapement. Dec. 6th, found new fan in operation and giving the very best results, and temporary ladder in the shaft until material could be got for permanent stairway. Mine was in good condition.

SYRACUSE SLOPE.

Located at Syracuse, O. Operated by the Sutton Coal Co., Syracuse, O. J. B. Malone, Syracuse, O., is superintendent, and H. Berse, same place, mine boss. Slope opening to No. 8 seam, $4\frac{1}{2}$ feet thick; worked on double entry system and ventilated by fan. Employs 28 miners, 16 day men. Coal is mined with picks, and hauled to bottom by mules and rope haulage in the slope. July 19th, found mine in bad condition. East side was full of black damp; ordered it closed until sufficient current of air could be had to keep it clear. Nov. 3rd, found mine in very bad condition; traveling or haulway was almost impassable owing to mud and water. Could not get a register of air at working places, and black damp was still coming from the old shaft. There was no supply of timber in or around the mine. Men were brought out until mine was put in a lawful and healthy condition. Dec. 8th, found idle. Dec. 14th, investigated death of Thos. Eynon, who was killed by fall of rock on first west entry in room No. 1. The room was very wide and poorly posted. Found mine in an improved condition.

STEVENS & LARKINS.

Located at Rutland, O., on K. & M. R. R. Operated by the Hocking Valley Fuel Co., Columbus, O. R. D. Mauk, Middleport, O., is superintendent and mine boss. Drift opening to No. 8 seam of coal, which is from 5 to $5\frac{1}{2}$ ft. thick; worked on double and single entry system; ventilated by furnace. Pick mine, and employs 38 miners, 11 day

men. Aug. 31st, found mine without any ventilation. Depended on natural current, which was unsatisfactory. Ordered furnace, or some artificial means of ventilation. Oct. 31st, mine was found idle. Large furnace had been built, but was not fired on account of mine being idle; no inspection made.

DABNEY.

Located $2\frac{1}{2}$ miles back in the hills from Middleport, O., the coal being hauled to the river by mules and used by the C., H. V. & T. R. R. for fuel. Operated by the Monkey Run Coal Co., Middleport, O. T. W. Jones is superintendent, and Andw. Smith mine boss, both of Middleport, O. Drift opening to the No. 8 seam of coal, 5 ft. thick. Worked on double entry system and has furnace ventilation. Nov. 1st, found mine in good condition. Employs 6 pick miners and 4 day men.

PEACOCK NO. 1 AND NO. 2.

Located at Pomeroy, O., on the Ohio River. Operated by Bengel Bros., Pomeroy, O. A. W. Bengel is superintendent, and H. V. Carl mine boss, both of Pomeroy, O. Drift openings to No. 8 seam of coal, which is about 5 ft. thick. Worked on double entry system and ventilated by furnace. Coal is cut by electric power and has locomotive and rope haulage; 60 loaders, 36 day men and 6 cutters employed. July 21st, mine found in fair condition.

SILVER RUN.

Located four miles west of Middleport, O., on the C., H. V. & T. R. R. Operated by W. C. Russell, Middleport, O., who is superintendent, and John Reese, same place, is mine boss. Drift opening to No. 8 seam of coal, 4 ft. thick. Worked on double entry system and ventilated by fan. Coal is mined and hauled by electric power. Employs 41 miners, 11 day men and 2 cutters. August 30, mine found in good condition.

GALLIA COUNTY.

CARL NO. 1 AND NO. 2.

Located at Carlton, O., on the C., H. V. & T. R. R. Operated by the Minshall Mining Co., Columbus, O. Wm. Edwards is superintendent, and Albert Frasier mine boss, both of Carlton, O. Drift opening to No. 8 seam of coal, which is about $3\frac{1}{2}$ ft. thick. Worked on double entry system and ventilated by furnace. Pick mine, and employs 35 miners, and 10 day men. Aug. 30th, found mine suspended. The Carl Coal Co. was unable to operate the mine, which had just been equipped with an electric plant and taken out before the other company took charge.

THIRD DISTRICT.

JAMES PRITCHARD,
HOCKING, PERRY, MUSKINGUM AND MORGAN COUNTIES.

(269)

HON. GEO. HARRISON, *Chief Inspector of Mines, Columbus, Ohio.*

DEAR SIR:— I have the honor to submit herewith my First Annual Report of inspections made and mines visited in the Third Mine Inspection District, embracing the counties of Hocking, Perry, Muskingum and Morgan, from the date of my appointment, March 17th, 1905, to December 31st, 1905, inclusive.

The conditions of the coal trade throughout the district for the year just closed have been exceptionally poor, and notwithstanding the peaceful relations existing between operators and miners, the mines have not been in operation more than half time. Two local strikes occurred, one at Black Diamond in Morgan County, and one at Pine Run in Perry. Each continued five weeks and were amicably adjusted. Three new mines were opened up during the year, each of which will be equipped with the latest and most approved modern machinery. Five mines were suspended and one abandoned. Fifty-two improvements were made during the year, being four furnaces, ten ventilating fans, seven new air shafts, twenty-five second openings, two sets of safety catches on hoisting cages, and five sets of stairs.

The above are exclusive of those that will be reported by W. H. Turner, Inspector of the Fifth District, who was assigned to this district prior to my appointment, and through whose persistence and energy they were secured.

The coal territory of this district, with few exceptions, has passed into the hands of those who plan its future development when opportunity and conditions permit. The substitution of machine for pick mining, which is well nigh universal in this district, has brought with it many evils of which there is just cause for complaint, among some of which are promiscuous shooting all hours of the day, keeping the air current continually polluted with powder smoke, and while the statutory volume of air is in circulation it seriously threatens the health of the mine workers of the mine. Another evil of equal importance is the stringing of electric wires throughout the mines without due regard for the safety of those whose duties are such that they are constantly exposed to this added danger, and, which in many cases, is entirely unnecessary. The Companies pursue the most convenient, rather than the safest methods, when the former is cheapest. Mining machines should be so constructed, or fitted with shields, that would enable machine cutters to work with a greater degree of safety than at present. This is particularly true of the low coal veins, where the number of accidents from this cause is greatest.

I regret that I am compelled to report twelve (12) fatal accidents during the year, nine (9) of which are credited to Perry, two (2) to Hocking, and one (1) to Muskingum Counties. A full report of these accidents has been made to the Department and will no doubt appear in another part of this Report.

On May 30th, an explosion occurred at the Santoy Mine No. 2, of the New England Coal Co., killing Wm. Donnelly, fire boss, who was making an examination of the mine preparatory to the night shift men entering the mine; the mine being idle that day, the body was found along the blind north entry about three hundred feet from the main east entry. It is presumed that he was carrying an open light and also a safety lamp, both of which were found near the body, and that he walked past a brattice which had previously been broken down by a fall, thus cutting the air current off the north entries where the gas had accumulated. To add to the force of the explosion, four or five kegs of powder on the second west entry were ignited, being opposite the point where explosion of gas occurred. As soon as it became known that an explosion had occurred a rescue party was organized, but was driven back by the damp and were themselves rescued by a second party, which proceeding by the aid of canvas brattices, finally reached the dead body of Mr. Donnelly, who had been terribly burned. On June 1st, visited the mine with Chief Inspector George Harrison, and made an examination of the mine, the east side of which was badly wrecked. We arranged for the building of the necessary brattices and doors, and on our return, June 5th and 6th, the mine had been restored to working condition.

In conclusion, will say that my official relations have been of the most pleasant character, and I wish to thank the Department for the kind assistance and many courtesies shown during the year.

Very respectfully,

JAMES PRITCHARD,
Inspector Third District.

MORGAN COUNTY.

BLACK DIAMOND.

Located one-half mile from Deavertown Station on Z. & W. R. R. Operated by Tropic Mining Co., Toledo, Ohio. J. D. Jones, Rose Farm, O., is superintendent, and Jas. Fleming, Rose Farm, mine boss. Slope opening, 400 ft. long, penetrating the No. 6 seam, which at this place is about four feet thick. Ventilated by fan. One hundred and sixty-seven miners and 86 day hands employed. Visited April 27th, inspected June 23rd and Dec. 11th. On last inspection advised that larger fan be installed as area was becoming too extended for the capacity of present ventilating power. Mine found in good condition on each inspection.

ROSE.

Located at Deavertown Station, on Z. & W. R. R. Operated by Carding Coal Co., Columbus, Ohio. John Carding, Columbus, O., is superintendent, and Geo. Lamb, Jr., Rose Farm, is mine boss. Drift opening to the No. 6 seam of coal, which is about 4 ft. thick. Ventilated by fan. Forty-three miners and 26 day hands employed. Two inspections made, Sept. 19th and Dec. 15th, and mine found in good condition.

MUSKINGUM COUNTY.

SALT RUN.

Located at Romine Station, on O. R. & W. R. R., and is operated by the Fair Oaks Coal Co., Zanesville, O. A. B. Mullen, Zanesville, O., is superintendent and mine boss. Drift opening to the No. 7 seam of coal, which at this place is about 6 ft. thick. Ventilated by furnace. Visited June 3rd and found mine idle. Seven miners and 2 day hands are employed.

DIAMOND NO. 2.

Located at Romine Station, on O. R. & W. R. R. Operated by Zanesville Coal Co., Zanesville, O. C. W. Joslin, Zanesville, O., is superintendent, and J. H. Rush, same place, is mine boss. Drift opening to No. 7 seam of coal, which is about 6 ft. thick. Furnace ventilation. The product of this mine is used for coaling engines on O. R. & W. R. R., and is worked on a very limited scale. Visited June 3rd and found in good condition. Three miners employed.

CADILLAC NO. 2.

Located on Duncan Run near Sealover Station, on O. & L. K. Division of the B. & O. Operated by the Duncan Run Coal Co. Detroit, Michigan. W. H. Blaney, Dillon, Ohio, is superintendent, and R. Robinson, Philo, is mine boss. Drift opening into No. 7 seam, which is 6 ft. thick at this place. Ventilated by furnace. Thirteen miners and 3 day hands are employed. Inspected Dec. 8th and found mine in very wet condition owing to surface leaks, but well ventilated.

CADILLAC NO. 1.

Located at same place as No. 2. Drift opening of the same kind, but has been suspended during the year covered by this report.

DEWEY NO. 3.

Located at Duncan Run near Sealover Station, on O. & L. K. Division of the B. & O. R. R. Operated by J. L. Reid, Zanesville, Ohio. J. L. Reid, Zanesville, O., is superintendent, and J. F. Berkemer, Philo, Ohio, mine boss. Drift opening to the No. 7 seam, and is about six feet thick. Ventilated by furnace. Thirteen miners and 4 day hands employed. Inspected Dec. 8th, and found mine in good condition.

GRANGER.

Located near Buckeye Station on O. & L. K. Division of B. & O. R. R. Operated by Siler Coal Co., McConnellsville, Ohio. C. F. Siler, McConnellsville, O., is superintendent, and Lawrence McNeal, Duncans Falls, mine boss. Drift opening into No. 6 seam of coal, which at this place is about four feet thick. Ventilated by furnace. Twenty miners and 4 day hands employed. Inspected Dec. 7th and found in good condition.

BLUE ROCK.

Located near Stone Station on O. & L. K. Division of B. & O. R. R. Operated by Blue Rock Mining Co., Gaysport, Ohio. J. Souders, Gaysport, Ohio, is superintendent, and E. W. Hughes, Gaysport, O., is mine boss. Drift opening to the No. 7 seam of coal, which at this place is about four feet in thickness. Ventilated by furnace. Fourteen miners and 5 day men are employed. Visited mine July 13th and found second opening and brick wall ordered by District Inspector W. H. Turner Fifth District, had been completed the previous day. Visited again Nov. 9th to investigate death of Wm. Russell, who was fatally injured by fall of slate Nov. 2nd and died Nov. 4th. On last visit found mine in good condition.

MUSKINGUM COAL & RY.

Located about one mile southwest of Buckeye Station on Cannelville Branch of the Z. & W. R. R. Operated by Muskingum Coal & Ry. Co., Zanesville, Ohio. J. H. Moorefield, Zanesville, O., is superintendent and mine boss. Drift opening to No. 6 seam of coal, which is about 3½ ft. thick at this place. Fan ventilation. Thirty-five miners and 19 machine and day men are employed. Electric machines are used for cutting the coal. Inspected Dec. 7th and found in good condition.

WALNUT HILL NO. 3.

Located at Cannelville, Ohio, on Cannelville Branch of the Z. & W. R. R. Operated by Ohio & Michigan Coal Co., Detroit, Mich. W. H. Blaney, Dillon, Ohio, is superintendent, and Elias Kinchloe, same place, is mine boss. Drift opening to the No. 6 seam of coal, which at this place is about four feet thick. Furnace ventilation. Chain machines are used for cutting the coal. Sixty-nine miners, 8 cutters and 13 day men are employed. Visited April 28th with District Inspector Turner, who had ordered second opening made on a former visit and which will be reported by him in his annual report. Inspected again Dec. 12th, and found in good condition. Advised that fan be substituted for the present furnace, as the rapid development of the mine will in a few months make this necessary.

MAYNARD NO. 38.

Located at Cannelville, on Cannelville Branch of the Z. & W. R. R. Operated by Maynard Bros., Columbus, Ohio. Elmer Bratton, Dillon, Ohio, is both superintendent and mine boss. Drift opening to No. 6 seam of coal, which is about four feet in thickness. Ventilated by furnace. Picks are used to mine the coal. Twenty miners and 7 day men employed. Visited April 28th and Dec. 13th, and notwithstanding mine had been idle during the summer it was found in good condition, except second opening, which was ordered repaired.

HAYMARKET NO. 37.

Located at Cannelville, on Cannelville Branch of the Z. & W. R. R. Operated by Fobes-Tompkins Coal Co., Columbus, Ohio. J. J. Murphy, Dillon, Ohio, is superintendent, and John Leach, same place, mine boss. Drift opening to the No. 6 seam of coal, which is about 4 ft. thick. Furnace ventilation. Picks are used to mine the coal. Thirty-eight miners and 13 day hands employed. Visited April 28th; mine was found idle, and continued so during the greater part of the year. Inspected Dec. 13th and found in fairly good condition. An airway being driven from first west to head of rooms will when completed greatly improve present ventilation.

NO. 16.

Located near Cannelville, on Cannelville Branch of the Z. & W. R. R. Operated by Fobes-Tompkins Coal Co., Columbus, Ohio. J. J. Murphy, Dillon, Ohio, is superintendent, and Harry Anders, same place, is mine boss. Drift opening to the No. 7 seam of coal, which at this place is about four feet thick. Ventilated by furnace. Picks are used to mine the coal. Twenty-seven miners and 8 day hands are employed. Visited April 28th with District Inspector W. H. Turner, of the Fifth District, who had previously posted notice for second opening, and found mine idle. Mine remained idle until latter part of summer, when it passed from Maynard Bros. to the control of present Company. Inspected Dec. 12th, and will be in good condition when orders of District Inspector Turner are complied with.

W. A. WERNER.

Located on the Dillon Road near Zanesville, and is operated by W. A. Werner, Zanesville, Ohio. Fred C. Werner, Zanesville, Ohio, is superintendent and mine boss. Drift opening into the No. 6 seam of coal, which is about three feet thick. Ventilated by furnace. Picks are used for mining and dogs are employed for hauling the coal. Seventeen miners and 1 day man are employed. Inspected Dec. 14th and mine found in fair condition. The coal from this mine is transported by wagon and is used largely in local trade.

ELK.

Located near Roseville, Ohio, on the C. & M. V. Ry., and is operated by Elk Coal Co., Columbus, O. S. E. Raney, Columbus, Ohio, is superintendent, and Wm. Reed, Roseville, Ohio, is mine boss. Drift opening to the No. 6 seam of coal, which at this place is about $3\frac{1}{2}$ ft. thick. Ventilated by furnace. Picks are used to mine the coal. Twenty-nine miners and 8 day men are employed. Inspected Sept. 21st, and there being no air in mine ordered operations to cease until furnace was built. Inspected again Nov. 23rd, found furnace complete and mine in good condition. Tested pair of Hopper scales and found them correct

LEHEW.

Located near Wortley Station on the Mill Run Road near Zanesville, Ohio. Transportation is by wagon. Operated by Geo. M. Lehw, Zanesville, Ohio. Drift opening to the No. 6 seam of coal, which is three feet in thickness. Ventilated by furnace. Inspected June 2nd and found ventilation poor; recommended building furnace at mouth of drift. Returned Aug. 5th and found new furnace giving general satisfaction.

BARKER.

Located near Lehew, and owned and operated by same party. Drift opening into No. 6 seam of coal, which is about 3 feet thick. Natural ventilation. Two miners employed. Transportation by wagon, and dogs are employed for hauling the coal. Visited June 2nd and Aug. 5th, and mine found in satisfactory condition.

GREINER.

Located on the Mill Run Road near Zanesville, Ohio. Transportation by wagon. Operated by G. M. Lehew, Zanesville, Ohio. Drift opening to the No. 6 seam of coal, 3 feet thick. Ventilated by furnace. Two miners employed. Dogs haul the coal. Visited June 2nd and Aug. 5th, and found considerable complaint on account of furnace being improperly fired. Requested that this be remedied.

HARPER.

Located near the Greiner mine. Transportation by wagon. Operated by Geo. Harper, Zanesville, Ohio. Drift opening to No. 7 seam of coal, 3 feet thick. Natural ventilation. One miner is employed. Dogs haul the coal. Visited June 2nd and Aug. 5th and found satisfactory.

LUTZ BROS.

Located on the Mill Run Road near Zanesville, Ohio. Wagon transportation, and is operated by Lutz Bros., Zanesville, Ohio. Drift to the No. 5 seam of coal, which at this place is about five feet thick. Two miners are employed, with haulage by dogs. Ventilation natural. Visited June 2nd and Aug. 5th and mine found in satisfactory condition.

MILES.

Located near Lutz Bros., and is a drift opening to the No. 5 seam of coal. Operated by Jos. Miles, of Zanesville, Ohio. Coal is 5 ft. thick. Natural ventilation. One miner is employed and dogs are used for hauling the coal. Visited June 2nd and Aug. 5th and mine found in satisfactory condition.

LACEY.

Located on Mill Run Road near Zanesville. Transportation by wagon. Operated by Frank Lacey, Hall Ave., Zanesville, Ohio. Drift opening to the No. 5 seam of coal, 5 feet thick. Natural ventilation. One miner is employed and dogs are used to haul the coal. Visited June 2nd and August 5th and mine found in satisfactory condition.

SPINKS.

Located on Mill Run Road near Zanesville, Ohio. Transportation by wagon. Operated by Henry Spinks, Zanesville, Ohio. Drift opening to No. 6 seam of coal, which is about 3 ft. thick. Natural ventilation. Two miners are employed and dogs are used for hauling the coal. Visited June 2nd and Aug. 5th and found conditions fairly good.

HOCKING COUNTY.

JOBS NO. 1.

Located near Jobs, Ohio, on a branch of the H. V. R. R. Operated by the Sunday Creek Coal Co., Columbus, Ohio. Edw. Fluke, Nelsonville, Ohio, is superintendent, and Jos. Smith, Jobs, Ohio, is mine boss. Drift opening to the No. 6 seam of coal. Ventilated by furnace. Inspected April 3rd and 4th. Ventilation was found deficient in the South Hill on account of brattices leaking. Requested that same be remedied as soon as possible. The other openings were found in fair condition. Machines were used to mine the coal. Eighty-eight miners, ten cutters and 27 day hands are employed.

JOBS NO. 2.

Located at Jobs, Ohio, on the H. V. R. R. Operated by the Sunday Creek Coal Co., and under the same management as No. 1. Drift opening to the No. 6 seam of coal, which is about 6 ft. thick. Ventilation by fan. Machines are used to mine the coal. One hundred and eighty-nine miners, 18 cutters and 63 day men employed. Inspected April 7th and found in fair condition except manway which was partly filled up with falls; requested that it be repaired. Visited again April 14th to investigate the death of Louis Lonberger, who was killed by fall of slate. Inspected Nov. 13th and mine found in fair condition.

JOBS NO. 3.

Operated by the same Company and at the same place as Jobs No. 2, and under same management. Drift opening to same seam of coal, and has fan ventilation. Machine mining, with 108 miners, 8 cutters and 48 day men employed. Inspected May 3rd and 4th and found in poor condition. Mine is composed largely of pillar work, making it difficult to get satisfactory results as to ventilation. Requested six brattices built in the North and West part of the mine, which when completed will remove the principal causes of complaint at present.

CAWTHORNE NO. 6.

Located near Monday, Ohio, on a branch of the H. V. R. R. Operated by New Pittsburg Coal Co., Columbus, Ohio. G. C. Weitzel, Buchtel, Ohio, is superintendent, and Jos. Slater, Monday, Ohio, is mine boss. Drift opening to the No. 6 seam of coal, which is about 6½ feet thick. Ventilated by two electric fans. Machine mining, with 220 miners, 18 cutters and 54 day men employed. Visited May 2nd to test a pair of R. R. scales, which were found correct. May 16th visited again with Chief Inspector Harrison and District Inspectors Waters and McDonald, of the First and Second Districts respectively, to investigate the condition of the top in a section of the mine previously condemned by a former Chief Inspector, a detailed report of which was furnished both Company and miners. The rest of the mine was found in excellent condition.

NEW PITTSBURG NO. 1.

Located at New Pittsburg, Ohio, on a branch of the H. V. R. R. Operated by the New Pittsburg Coal Co., Columbus, Ohio. G. C. Weitzel, Buchtel, Ohio, is superintendent, and Geo. Butts, Blatchford, Ohio, is mine boss. Drift opening to the No. 6 seam of coal, which is from 6 to 7 feet thick. Ventilation by fan. Machine mining, with 166 miners, 10 cutters and 47 day men employed. Visited July 20th; found mine in good condition except the 7th and 8th West entries, where a squeeze had taken place and six brattices broken down. Finding no air in those entries, requested men to cease work until brattices were built and entries properly protected. Also requested that another fan be placed in mine to keep back black damp from old works. Visited Nov. 29th, found extra fan had been erected and everything in fair condition.

NEW PITTSBURG 1½ (BIG LIZ.)

Located at the same place and under the same management as No. 1. Penetrates same seam and is of the same thickness. Ventilated by a fan. Inspected July 20th and Nov. 29th. On July 20th, air was found deficient on account of new fan being improperly erected. Requested that mine cease operation until this defect was remedied. On Nov. 29th, the mine (which is just being developed) was found in satisfactory condition and fan working in good shape. Machine mining, with 16 miners, 2 cutters and 2 day men employed.

CONSOL NO. 3.

Located at Consol, on a branch of the H. V. R. R. Operated by the New Pittsburg Coal Co., under the same management as No. 1. Drift opening to the No. 6 seam of coal, which is about 6½ feet thick. Ventilated by fan. Coal is mined by picks and machines. One hundred and

twenty miners, 7 cutters and 55 day men employed. Visited July 22nd and 23rd, and August 30th. On first visit found air deficient and mine filled with black damp on account of squeeze on main airway, causing the removal of an electric fan from the interior of the workings and throwing thirty men out of employment. In company with the mine boss, Mr. Butts, and the Mine Committee, an outlet was found by which with some bratticing the places could be ventilated; this was done at once, which made conditions satisfactory. Last visit was to investigate the accident that resulted in death of Thos. Ellis by fall of roof coal. Mine was found in as good condition as could be expected, as it is all pillar work.

NEW PITTSBURG NO. 7.

Located near Murray City, Ohio, on branch of the H. V. R. R. Operated by New Pittsburg Coal Co., Columbus, Ohio. G. C. Weitzel, Buchtel, Ohio, is superintendent, and M. M. Kasler, Nelsonville, O., is mine boss. Drift opening to the No. 6 seam of coal, which is from 6 to 8 ft. thick at this place. Ventilated by two fans. Machine mining, with 236 miners, 24 cutters and 74 day men employed. Visited May 5th; found belt on generator broken and fans idle. Visited again Aug. 7th and 8th and found ventilation very unsatisfactory on account of neglect to properly seal up brattices and doors; requested that this be done as soon as possible. Advised that no more men be employed until ventilation was improved. Visited Nov. 15th and 27th and found that the North fan was giving very unsatisfactory results; suggested that they employ a boy to attend to it until they get two north entries completed which are being driven for new inlet. Again requested that no more men be employed until those improvements were made.

NEW PITTSBURG NO. 5.

Located at Murray City, O., on a branch of the H. V. R. R. Operated by the New Pittsburg Coal Co., Columbus, O. G. C. Weitzel, Buchtel, Ohio, is superintendent, and John Slater, Murray City, O., is mine boss. Slope opening, 125 feet in length to No. 6 seam of coal, which is about 6½ ft. thick. Ventilated by two fans. Machine mining, with 218 miners, 20 cutters and 61 day men employed. Inspected April 5th and 6th and Aug. 10th and 11th; on each occasion found the mine in generally good condition. This mine has several openings, which prove a valuable aid in ventilating.

SNAKE HOLLOW NO. 207.

Located at Snake Hollow on a branch of the H. V. R. R. Operated by Continental Coal Co., Columbus, O. D. C. Thomas, Glouster, O., is superintendent, and Edw. Muir, Nelsonville, O., is mine boss. Drift opening to the No. 6 seam of coal, which is about 6 ft. thick. Ventilated by fan. Machine mining, with 149 miners, 12 cutters and 24 day men

employed. Visited June 20th and found mine idle. Mine was in as good condition as could be expected under the circumstances. Work has been very irregular all summer.

SNAKE HOLLOW NO. 208.

Located at the same place, and under the same management as No. 207. Penetrates the same seam of coal. Ventilated by fan and furnace. Mining is by machines. Eighty-eight miners, 8 cutters and 30 day men employed. Mine was visited June 20th, but it had not been in operation for weeks and considering the unfavorable conditions under which management has been laboring on account of slow work, mine was in fairly good condition.

SYCAMORE NO. 202.

Located near Murray City, O., on branch of the H. V. R. R. Operated by Continental Coal Co., Columbus, O. D. C. Thomas, Glouster, O., is superintendent, and Wm. Thomas, Murray, Ohio, is mine boss. Drift opening to the No. 6 seam, which is from 6 to 8 feet thick. Fan ventilation, machine mining. Employs 50 miners, 4 cutters and 25 day men. Visited May 5th and Aug. 9th, and found in poor condition owing to the many faults encountered and cutting off mine airways. The prevalence of so many irregular faults left much of the coal in pockets, which were very difficult to ventilate properly. Requested that an opening be made at the head of the rooms on fourth east entry, which will enable the management to properly ventilate that section of the mine.

PERRY COUNTY.

NO. 8 (OR NO 253.)

Located at Rendville, Ohio, on the T. & O. C. Ry. Operated by the Sunday Creek Coal Co., Columbus, Ohio. Harry Kelley, Corning, Ohio, is superintendent, and Andw. Braidwood, same place, is mine boss. Shaft opening 70 ft. deep to the No. 6 seam of coal, which is from 12 to 14 feet thick. Ventilated by fan. One hundred and seventy-nine miners, 10 cutters and 52 day men employed. Inspected April 11th and found in good condition. Visited May 22nd, found mine idle and no inspection was made. This mine has not resumed operations up to the date of filing this report.

SANTOY NO. 1.

Located at Santoy on a branch of the B. & O. R. R. Operated by New England Coal Co., Columbus, O. N. B. Snell, Santoy, O., is super-

intendent, and B. F. Lindsay, same place, is mine boss. Shaft opening 185 feet in depth to No. 6 seam of coal, which is 4 ft. thick. Ventilation by fan. Machine mining, with 140 loaders, 22 cutters and 46 day hands employed. Visited June 1st, accompanied by Chief Inspector, and found mine in poor condition. Requested that check curtains or doors be placed on different entries to more properly ventilate rooms. Visited again June 5th and 6th, found former request complied with and conditions in rooms materially improved. Inspected July 11th and 12th; mine found in fairly good condition. Oct. 10th and 11th, found new management in charge and mine in fair condition. Called again to investigate the deaths of Geo. Robinson and Francis Waugh, the former being killed instantly, the latter dying the following day, Nov. 21st, by fall of slate.

CAPTAIN MINE, OR SANTOY NO. 2.

Located at Santoy, on branch of the B. & O. R. R. Operated by New England Coal Co., Columbus, O. N. B. Snell, Santoy, is superintendent, and Jos. Thompson, same place, is mine boss. Shaft opening 214 feet deep to the No. 6 seam of coal, which is about 4 ft. thick. Fan ventilation. Machine mining, with 135 loaders, 20 cutters and 52 day hands employed. June 1st visited mine with Chief Inspector Harrison, to make examination of conditions on east side, where a violent explosion of carbureted hydrogen gas occurred May 30th, resulting in the death of Wm. Donnelly, fire boss, the only person in the mine at the time. Mine was found in a badly wrecked condition and arrangements were made to repair same. June 5th and 6th, visited again with Chief Inspector Harrison, and found mine in condition for operation again except safety catches on cages, which were requested repaired. Visited July 10th and 11th; requested that fan be kept running at greater speed on account of some entries generating dangerous quantities of gas. Oct. 12th and 13th, found mine in greatly improved condition.

NO. 26.

Located one mile south of Corning, O., on the T. & O. C. R. R. Operated by Chicago and Hocking Coal Co., Toledo, O. Wm. Lafferty, Corning, O., is superintendent and mine boss. Slope opening, 276 feet long, to the No. 6 seam of coal, which is from 6 to 8 feet thick. Fan ventilation. Machine mining, with 70 loaders, 8 cutters and 32 day hands employed. Inspected April 12th and found in very poor condition. Visited June 7th, June 30th and July 14th with Chief Inspector to make provision for the strengthening of a dam belonging to the K. & M. Ry., and located a short distance north of the Slope. Representatives of both Coal and Railway Companies being present, a mutual understanding was arrived at and the dam has since been repaired along the lines suggested.

NO. 20.

Located at Hemlock, O., on the Z. & W. Ry. Operated by Sunday Creek Coal Co., Columbus, O. John Wile, Carrington, Ohio, is superintendent, and Wm. Davis, Hemlock, Ohio, is mine boss. Slope opening, 100 feet long, to the No. 6 seam of coal, which is 6 feet thick. Ventilated by fan. Machine mining, with 65 loaders, 8 cutters and 31 day hands employed. Inspected March 22nd and found in very poor condition owing to airways having fallen in and the old works between the fan and present workings making it impossible to secure a safe and available escapement and airway for the mine. Requested that an air shaft be sunk at head of main east entry. Visited April 10th, when air shaft was located and entries driving toward it. May 22nd, visited again, and found mine had not worked much since former visit; requested that entries going in direction of escapement way be kept working, if possible. Visited Aug. 29th, when Mr. Wile took charge, and no attempt being made to sink shaft, posted notice reducing number of men to ten, since which time the mine has been idle.

NO. 9.

Located at Sulphur Springs, O., on the Glouster Branch of the T. & O. C. Ry. Operated by Sunday Creek Coal Co., Columbus, O. John Wile, Carrington, O., is superintendent, and Thos. Grogan, of the same place, is mine boss. Slope opening, 100 feet long, to the No. 6 seam of coal, and is ventilated by fan. Machine mining, with 176 miners, 16 cutters, and 68 day hands employed. Inspected May 8th, and found mine in good condition. Inspected again Aug. 4th, found conditions excellent. Visited Nov. 1st to investigate death of Jas. Kusick, who was killed by fall of coal. Inspected Dec. 29th and recommended that they make their inlet from the old No. 12 mine if possible, as the motor which had been extended further North was having an injurious effect on former inlet.

NO. 21.

Located at Carrington, O., on Glouster Branch of the T. & O. C. and Z. & W. Railways. Operated by Sunday Creek Coal Co., Columbus, Ohio. John Wile, Carrington, O., is superintendent, and John Hilton, same place, is mine boss. Drift opening to No. 6 seam of coal, which is from 6 to 10 feet thick. Ventilated by fan. Machine mining, with 70 loaders, 8 cutters and 41 day hands employed. Inspected May 9th and found in very poor condition; requested check door placed on 18th west and Room 14 on 17 cut off stopped on account of being too far ahead of air; requested breakthroughs made in rooms 15, 16 and 17 on No. 11 entry until same was properly bratticed. Inspected again Nov. 20th and found mine much improved under the direction of the present management. This mine is rapidly being exhausted and is in as good condition as surroundings and circumstances will permit.

SHAWNEE VALLEY.

Located at Shawnee, Ohio, on the Z. & W. and B. & O. Railways. Operated by Maynard Bros., Columbus, Ohio. W. E. Williams, Shawnee, is superintendent, and Jas. Davis, Shawnee, O., is mine boss. Drift opening to the No. 6 seam of coal, which at this place is 10 feet thick. Ventilated by fan. Picks are used to mine the coal. Forty-five miners and 10 day hands employed. Inspected April 13th and found sufficient air except in main south where 4 men were engaged drawing pillars; requested that they be brought back near air course. June 9th, mine again visited and found in poor condition on account of air course falling in and mine full of damp; requested that fan be moved to mouth of drift and air forced past working places to an air shaft which had been abandoned. Visited July 8th and Oct. 3rd; on last visit fan was moved and sufficient air being furnished. Mine nearly exhausted and main pillars being drawn.

PINE RUN NO. 44.

Located about one and one-half miles north of Sulphur Springs on a branch of the Z. & W. R. R., and is operated by Maynard Bros., Columbus, O. W. E. Williams, Shawnee, O., is superintendent and mine boss. Drift opening to the No. 6 seam of coal, which is about 5 feet in thickness. Ventilated by fan. Machine mining, with 62 loaders, 8 cutters and 33 day hands employed. Inspected four times; March 29th, May 11th, Aug. 2nd and Nov. 22nd. On first two visits mine found in poor condition; requested that new second opening be made as the one in use was neither available or legal. During the making of this improvement a five weeks' strike occurred over the changing from Basket to R. R. Scales, but finally arrangements were made with men to have manway finished. On third visit, this being completed, mine was found in good condition. On last visit mine was again in poor condition on account of neglected condition of brattices and doors; requested same repaired as soon as possible.

ROCK RUN NO. 3.

Located near New Straitsville, O., on the Rock Run branch of the B. & O. and Straitsville Division of the H. V. R. R., and is operated by the C. & H. C. & I. Co., Columbus, O. Guy Newton, New Straitsville, O., is superintendent, and J. W. Wion, same place, is mine boss. Drift opening to No. 6 seam of coal, which is from 6 to 8 ft. thick. Ventilated by two fans. Machine mining, with 161 miners, 16 cutters and 82 day hands employed. Inspected July 24th, 25th and 26th, and found the new side in poor condition on account of the fan being too small to maintain necessary circulation, with no available escapement way on that side; requested that steps be taken to provide a safe traveling way and that larger fan be installed. Inspected again Sept. 27th and 28th; found

management changed; Jos. Moore and Jas. Feeney being in charge. Work on improvements requested on first visit was being pushed as rapidly as possible. Visited Dec. 1st, and found that air shaft and slope were completed and 16 foot fan on ground ready to be installed, which will put this mine in splendid condition due to efforts of Supt. Moore and Mine Boss Feeney.

JONES BROS NO. 15.

Located at New Straitsville, Ohio, on a branch of the H. V. R. R. Operated by Jones Bros. Coal Co., of New Straitsville, O. Evan E. Jones, New Straitsville, O., is superintendent and mine boss. Drift opening to No. 6 seam of coal, which is from 10 to 12 feet thick. Natural ventilation. Machine mining, with 50 miners, 2 cutters and 10 day hands. One inspection made, June 8th, and mine found in good condition. The old hill is practically exhausted and all work is now confined to the new opening; requested that an air shaft or second opening be made on this side; examined old mine to see that it was properly protected from effects of coal on fire in the Mungen hollow and found that every precaution had been taken to safeguard both men and property.

NO. 37.

Located at New Straitsville, O., on a branch of the H. V. R. R. Operated by the Essex Coal Co., New Straitsville, O. Calvin Essex is superintendent, and O. L. Essex mine boss, both of New Straitsville, O. Drift opening to the No. 6 seam of coal, which is from 10 to 12 feet thick. Ventilated by fan. Machine mining, with 63 loaders, 4 cutters and 20 day hands employed. Visited April 21st; found mine idle but in fair condition.

XX NO. 1 AND 1½.

Located at Shawnee, Ohio, on the Z. & W. and B. & O. Rys., and is operated by Taylor, Williams & Jenkins, Columbus, O. D. C. Jenkins, Shawnee, Ohio, is superintendent, and W. K. Redfern, Shawnee, O., is mine boss. Drift openings into the No. 6 seam of coal, which is from 8 to 10 feet thick. Each side is ventilated by fan. Machine mining, with 87 loaders, 8 cutters and 39 day hands employed in both hills. Inspected Oct. 2nd, and with exception of a few pillars in the old hill the mine was found in fair condition. Neither side, however, was provided with lawful second openings; requested mine foreman to comply with the law in this respect immediately, which he agreed to do.

XX NO. 2.

Located at Shawnee, O., on the Z. & W. and B. & O. Rys. Operated by Jenkins & Redfern, Shawnee, O. D. C. Jenkins, Shawnee, O., is superintendent, and D. W. Jones, Shawnee, O., is mine foreman. Drift

opening into the No. 6 seam of coal, which is about 8 feet thick. Has furnace ventilation and employs 50 pick miners and 5 day hands. One inspection made, Oct. 3rd, and mine found in poor condition; ventilation deficient; requested breakthroughs made in rooms on 3rd and 4th west entries, and check door placed between Black and McKitchen rooms for purpose of ventilating rooms on 4th west entry; also that more attention be given the furnace, keeping it clean and well fired.

NO. 301.

Located at Congo, O., on the Z. & W. R. R. Operated by the Sunday Creek Co. Harry Kelly, Corning, O., is superintendent, and Henry Wilson, Congo, O., mine boss. Shaft opening, 28 ft. deep, No. 6 seam of coal, which is about 14 feet in thickness. Ventilated by fan. Machine mining, and employs 200 loaders, 16 cutters and 72 day hands. Inspected June 13th and 14th, Oct. 4th, and Dec. 22nd and 23rd, and on each occasion found mine in good condition, the only cause of complaint being difficulty in securing trappers to attend doors in Northwest part of mine.

NO. 302.

Located near Congo, Ohio, on the Z. & W. R. R., and is operated by the Sunday Creek Coal Co., Columbus, O. Harry Kelly, Corning, O., is superintendent, and John E. Duffy, Congo, O., is mine boss. Shaft opening 20 feet deep to the No. 6 seam of coal, which is about 14 feet thick. Ventilated by fans. Coal is mined by machines. One hundred and ninety-eight loaders, 20 cutters and 61 day hands are employed. Inspected June 15th and 16th, also Dec. 21st and 22nd, and mine found in good condition on each occasion, except that on last visit on an entry located in the extreme southeast corner ventilation had been shut off, caused by breaking down of a brattice; work suspended at this point until damage was repaired. Otherwise, both mines were excellently managed.

ROCK RUN.

Located at Rock Run, Ohio, and the output used for fueling. The brick plant is located at the same place. Operated by Jas. O'Donnell & Son, New Straitsville, O. Jas. O'Donnell is superintendent and W. J. O'Donnell mine boss. Drift opening to the No. 6 seam of coal, which is about 8 feet thick. Natural ventilation. Nine pick miners and 2 day hands employed. Inspected Sept. 29th and found in as good condition as circumstances would permit. Preparations are being made to abandon this part of the mine as soon as the few remaining pillars are withdrawn, when work will be transferred to a new opening now being prepared.

O. M. & M. CO.

Located near Shawnee, Ohio, and the output used for fueling the brick plant of O. M. & M. Co., located at same place. Operated by Davis Bros., Shawnee, O. S. M. Gould, Shawnee, Ohio, is superintendent, and W. W. Davis, same place, is mine boss. Drift opening to the No. 6 seam of coal, which is about $5\frac{1}{2}$ feet thick. Natural ventilation. Fourteen pick miners and 2 day hands employed. Visited July 7th, and found conditions satisfactory as men were all working around the crop.

GIBBS.

Located near New Straitsville, Ohio, on the Rock Run Branch of the B. & O. R. R. Operated by A. Gibbs, New Straitsville, O., who is both superintendent and mine boss. Drift opening to the No. 6 seam of coal, which is about 10 feet thick. Machine mining, with 20 loaders, 2 cutters and 6 day hands employed. Visited May 10th and found idle. So many openings having been made in and around this mine, assures an ample supply of air for number of men employed, as they are engaged close to crop line. Natural ventilation.

JOBS NO. 1.

Located about one mile east of McCuneville, O., on a branch of the B. & O. R. R., and is operated by the Peabody Coal Co., Chicago, Ill. J. L. Hickman, New Lexington, O., is superintendent and mine boss. Drift opening, to the No. 6 seam of coal, which is about five feet thick. Ventilated by fan. Machine mining, with 18 loaders, 2 cutters and 4 day hands employed. Inspected April 18th, and mine found in good condition; also on Oct. 26th, when ventilation was deficient in several parts of mine on account of neglecting to properly look after brattices and doors. A new Buffalo fan has been placed in this mine, and when brattices are repaired will be in good condition.

JOBS NO. 2 AND 3.

Located in close proximity to No. 1, coal is handled on same tipple. and operated by same Company and management as No. 1. Coal is mined in both openings by machines. Each opening ventilated by a fan. Sixty-seven loaders, 12 cutters and 21 day hands employed. Visited April 18th, but was found idle. Inspected Oct 26th and found in fair condition, except that doors were neglected thereby reducing an otherwise large circulation of air at the extremity of the mines; requested that those conditions be improved as early as possible.

UPSON NO. 1 AND NO. 2.

Located at Dixie, on the B. & O. Ry., and is operated by the Upson Coal Co., Newark, Ohio. Walter Upson, Newark, O., is superintendent, and John M. Bell, Dixie, O., mine boss. Drift opening to No. 6 seam of coal, which is about $3\frac{1}{2}$ feet thick. Two openings, each equipped with a fan. Coal is mined with machines. Seventeen loaders, 4 cutters and 15 day hands employed. Visited March 21st to test a pair Standard Hopper scales, which were found weighing correctly. Visited again May 1st, but mine was idle and company preparing to change from mule to motor haulage, which has since been completed.

BRISTOL NO. 2.

Located at Bristol Junction, on the B. & O. R. R. Operated by the Bristol Coal Co., Newark, Ohio. G. A. Blood, Newark, O., is superintendent, and E. W. Stalter, Dickson, O., mine boss. Drift opening to the No. 6 seam of coal, which is about $3\frac{1}{2}$ feet thick. Ventilated by a fan. Harrison Punching Machines are used for mining the coal, with compressed air for motive power. Twenty-nine loaders, 10 cutters and 14 day hands are employed. The mine is developing new territory north of the old works and is well ventilated.

BEAR RUN NO. 1.

Located a half mile west of Lyonsdale, on the C. & M. V. R. R., and is operated by the W. A. Gosline & Son Coal Co., Toledo, Ohio. E. W. Lewis, New Lexington, Ohio, is superintendent and mine boss. Shaft opening, 64 feet deep, to the No. 6 seam of coal, which is about 4 feet thick. Ventilated by fan. Machine mining, with 40 loaders, 8 cutters and 19 day hands employed. Inspected Dec. 5th, with District Inspector W. H. Turner, of the Fifth District, and Chief Inspector Geo. Harrison; mine found in good condition so far as ventilation is concerned on account of surplus volume of air. Little attention was paid to doors or brattices, and breakthroughs between rooms were not kept properly clear. In other respects, the mine was in good condition.

IMPERIAL NO. 6 VEIN.

Located at Wilbren, Ohio, on the C. & M. R. R., and is operated by the Imperial Coal Co., Columbus, O. Seth Williams, Columbus, O., is superintendent, and Frank Eckard, New Lexington, O., mine boss. Drift opening to No. 6 seam of coal, which is about 4 feet thick. Ventilated by fan. Coal is mined by machines, and 22 loaders, 2 cutters and 5 day hands are employed. Inspected May 12th; found ventilation deficient on account of the return airway being filled up with water; re-

quested that door be taken off manway entry and placed on motor entry, that brattice be removed between fan and water, and motor road be made return air course, after which the mine was found in good condition.

IMPERIAL NO. 5 VEIN.

Located at same place as No. 6, and operated by the same Company and under same management. Drift opening to the No. 5 seam of coal, which is about $3\frac{1}{2}$ feet thick, and is ventilated by fire basket. Machine mining, with 11 loaders, 2 cutters and 2 day hands employed. Inspected May 12th and found the air deficient and the inlet closed up by a fall, and the return to fire basket also closed up; requested that the mine suspend operations until such time as the Company was prepared to put the mine in safe working condition. Nothing having been done to improve causes complained of, mine has remained idle up to this date.

BEECH GROVE.

Located at McLuney, Ohio, on the C. & M. V. R. R. Operated by the Wills Creek Coal Co., Detroit, Mich. Lon Tague, McLuney, O., is superintendent, and Lewis Morrow, same place, mine boss. Drift opening to No. 6 seam of coal, $3\frac{1}{2}$ feet thick; fan ventilation. Machine mining, with 87 loaders, 14 cutters and 30 day hands employed. Inspected April 25th; found mine had been idle for two weeks. Visited again Sept. 12th to investigate death of Fred Tippy, who was killed by loaded car. Mine was found in good condition except manway, which was requested improved.

KEYSTONE NO. 1.

Located near Crooksville, Ohio, on the C. & M. V. R. R. Operated by the Zanesville Coal Co., Zanesville, O. Thos. Opie, Crooksville, O., is superintendent, and John McInerney, same place, is mine boss. Drift opening to the No. 6 seam of coal, which is about $3\frac{1}{2}$ feet thick. Fan ventilation. Machine mining, with 84 loaders, 14 cutters and 32 day hands employed. Inspected Dec. 28th, and with exception of breakthroughs between rooms which were permitted to become partially closed up mine was found in excellent condition.

KEYSTONE NO. 2.

Located at McLuney, Ohio, on the C. & M. V. R. R. Operated by the Zanesville Coal Co., Zanesville, O. Thos. Opie, Crooksville, O., is superintendent, and Robert Robb, McLuney, O., mine boss. Drift opening to No. 6 seam of coal, 3 ft. 8 in. thick; ventilated by fan. Machine mining, with 35 loaders, 8 cutters and 12 day hands employed. Inspected April 25th, with District Inspector W. H. Turner; found mine idle; after firing up furnace, which at that time was the ventilating medium, we

found volume of air sufficient, the chief complaint being neglect in keeping furnace properly fired. Visited June 22nd, but as they were engaged in making extensive repairs, furnace was not fired. Called Sept. 18th to investigate death of Chauncey Hill, who was killed by falling in chain of cutting machine on which he was at work. Fan had been installed since last visit and mine found in excellent condition throughout

KEYSTONE NO. 4

Located about one mile west of No. 2, and is operated by the same company. Thos. Opie, Crooksville, O., is superintendent, and J. P. Clements, McLuney, O., is mine boss. Drift opening to the No. 6 seam of coal, which is about $3\frac{1}{2}$ feet thick; ventilated by furnace. Visited twice, April 22nd and 27th, and on both visits mine was closed down, no one but mine boss being employed around premises.

NEW CRESCENT NO. 1 AND NO. 2.

Located near Roseville, O., on branch of the C. & M. V. R. R. Operated by the Kennon Coal & Mining Co., Cleveland, O. R. T. Price, Cleveland, O., is superintendent, and G. W. Robson, Roseville, O., mine boss. Drift openings to No. 6 seam of coal, which is about $3\frac{1}{2}$ feet thick. Both openings have furnace ventilation. Coal is mined by machines, with 43 loaders, 10 cutters and 22 day hands employed. Inspected Sept. 21st; mine being idle, satisfactory results could not be obtained on account of the light fire on furnace in No. 2 hill, where most men are employed. When working, and furnace properly fired, there is sufficient circulation. No. 1 found in good condition with exception of bad top, on account of which they have been unable to turn rooms. This mine's development has been retarded. Prospects now are that better conditions will prevail in future and places will be provided for men from No. 2, which is rapidly becoming exhausted. Visited Nov. 23rd and tested pair of Standard Hopper scales, which were found weighing correctly.

20TH CENTURY.

Located near Redfield, Ohio, on a branch of the Z. & W. R. R. Operated by the Twentieth Century Coal Co., Columbus, O. J. C. Davis, Redfield, O., is superintendent, and A. E. Bratton, same place, mine boss. Drift opening to the No. 5 seam of coal, which is about 4 feet thick; ventilated by furnace. Pick mining, 38 miners and 12 day hands employed. Visited June 27th; company engaged in changing their haulage from horses to rope and making necessary repairs this work entailed.

CHESTNUT RIDGE.

Located near Redfield, O., on branch of Z. & W. R. R. Operated by A. Simons, Redfield, O., who is superintendent, with Oscar Hammond,

Redfield, O., mine boss. Drift opening to the No. 5 seam of coal, about 4 feet thick; ventilated by furnace. Pick mining, with 38 miners and 8 day hands employed. Visited June 27th, but mine was idle and would not be in operation before about Aug. 1st. Mr. Simons was engaged in making some improvements in an old opening near his own mine for the purpose of drawing some pillars and building of a new furnace.

UNION.

Located one mile east of Crooksville, Ohio, on the C. & M. V. R. R. Operated by the Union Coal Mining Co., Columbus, O. C. B. Hall, Columbus, O., is superintendent, and T. H. Carter, Crooksville, O., mine boss. Drift opening to No. 6 seam of coal, 3 feet 8 inches thick. Ventilated by furnace. Mining is by machine and pick, with 7 miners, 19 loaders, 4 cutters and 9 day hands employed. Inspected Nov. 22nd and found in poor condition on account of failure to brattice up breakthroughs in entries until two or three at a time on different entries are left standing open; requested that all entries be suspended until this work was completed, and that furnace be cleaned out and larger fire be maintained to increase ventilation.

INDIAN RUN NO. 1.

Located one and one-quarter miles northwest of Hartlyville Station, on the Glouster branch of the Z. & W. Ry. Operated by the Indian Run Mining Co., Wellston, O. C. S. Goddard, Glouster, O., is superintendent, and Chas. Hill, Glouster, O., mine boss. No. 1 is a drift opening to No. 7 seam of coal, about 5 feet thick; fan ventilation. Coal is mined by machines, with 22 loaders, 4 cutters and 10 day hands employed. Visited March 30th to investigate death of David W. Sorrels, who was killed by fall of slate on that date. Inspected again July 5th and 17th, and mine found in fair condition. The prevalence of sandstone rolls, diverting the direction of the entries, makes it extremely difficult to keep this mine in as good condition as one more fortunately situated.

INDIAN RUN NO. 2.

Located at same place and under same management and direction as No. 1. Shaft opening 55 feet deep, to No. 6 seam of coal, which is about 5 feet thick. Ventilated by fan. This is a new opening and is only partially developed. Visited March 30th, and as coal had been struck in the shaft at that time, requested that preparations be made to make second opening or escapement way. Visiting mine again July 5th, and finding no efforts being made to secure second opening, posted notice reducing number of men to that required by law in such cases, and promises were made that the matter would be hastened as rapidly as possible. July 17th, visited mine again, with Chief Inspector, and still no provision had been

made for escapement way. Men were taken out of the mine and warned that violation of notice would be followed by prosecution. Finally, after various attempts to baffle the Department, the second opening was started, and was in progress Aug. 12th and 28th and Oct. 27th when visited on dates named.

PEDLOW OR NO. 321.

Located at Misco, Ohio, on the Z. & W. R. R. Operated by Sunday Creek Coal Co., Columbus, O. J. W. Bryan, Misco, O., is superintendent, and Herman Theison, same place, mine boss. Shaft opening 30 ft. deep to No. 6 seam of coal, which is 3 ft. 8 in. thick. Ventilated by fan. Machine mining, and employs 94 loaders, 14 cutters and 33 day hands. Visited April 27th with District Inspector W. H. Turner, of the Fifth District, and inspected Aug. 31st and Oct. 16th. On last inspection mine was found in poor condition and ventilation deficient owing to failure to provide necessary doors and brattices when needed; requested that this be remedied soon as possible, that breakthroughs between rooms be kept clean, and that new fan engine be secured to replace the old worn-out one now in use.

BRIAR HILL OR NO. 322.

Located near Misco, Ohio, on the Z. & W. Ry. Operated by the Sunday Creek Coal Co., Columbus, O. J. W. Bryan, Misco, O., is superintendent, and W. G. Bennett, Corning, O., mine boss. Slope opening, 125 feet long, to No. 6 seam of coal, which is 3 ft. 8 in. thick. Ventilated by fan. Machine mining, but has been suspended during period covered by this report. Visited April 27th and Sept. 1st. On last visit ladders had been placed in air shaft for escapement way and notice for same was removed.

REND NO. 1 AND NO. 2.

Located near Crooksville, O., on the C. & M. V. R. R. Operated by the Standard-Hocking Coal Co., Chicago, Ill. J. W. Jones, Crooksville, O., is superintendent and mine boss. Drift openings to No. 6 seam of coal, which is 3 ft. 8 inches thick. No. 1 ventilated by fan, No. 2 by fire basket. Machine mining, with 51 loaders, 10 cutters and 21 day hands employed. Visited April 27th, with District Inspector W. H. Turner; found second opening for No. 1 complete, and one for No. 2 within seven feet of being finished, both of which were ordered by Mr. Turner. Inspected again Sept. 20th; found air in No. 2 deficient and requested that no more men be employed on that side until equipped with a fan, or some other more powerful ventilating medium, than that now employed. Tested pair of Howe-Hopper Scales and found them weighing correctly. No. 1 side was found in fair condition.

PEERLESS.

Located at Saltillo, Ohio, on the Z. & W. R. R. Operated by the Hamilton & Wallace Coal Co., Columbus, O. Wm. Wallace, New Lex-

ington, O., is superintendent, and Samuel Steele, same place, mine boss. Drift opening to No. 6 seam of coal, which is $3\frac{1}{2}$ feet thick. Ventilated by fan. Machine mining, with 36 loaders, 8 cutters, and 13 day hands employed. Visited Sept. 22nd; found mine idle but in good condition except manway, which needed repairing. Another opening will soon be made for this purpose and for reaching the No. 5 seam of coal, which is in close proximity to this mine.

LYONSDALE.

Located at Lyonsdale, on the C. & M. V. R. R. Operated by the Wills Creek Coal Co., Detroit, Mich. Geo. Green, Zanesville, O., is superintendent, and John Williams, Lyonsdale, O., mine boss. Drift opening to No. 6 seam of coal, which is about $3\frac{1}{2}$ ft. thick. Fan ventilation. Coal is mined by machines; 111 loaders, 14 cutters and 32 day men employed. Inspected April 26th with W. H. Turner, of the Fifth District; mine idle; found air deficient on new side, and requested that manholes be made along motor road. Inspected again June 21st, while investigating death of Howard Hall, who was killed by loaded car while engaged as driver. Mine on this occasion was found in fair condition.

ROCK RUN CLAY.

Located at the Rock Run Brick plant on the Rock Run Branch of the B. & O. R. R. Operated by the Iron Clay Brick & Mining Co. Columbus, O. D. B. Meehan, Columbus, O., is superintendent, and Wm. Davis, New Straitsville, mine boss. Drift opening to No. 5 seam of clay, which is from 6 to 8 feet thick. Has natural ventilation; 6 miners and 7 day men employed. One inspection made, Sept. 29th, and mine found in poor condition; requested that brattices be built to conduct air to face of working places and cross cut driven to crop for second opening; the one now in use not being available.

O. M. & M. CO. CLAY.

Located at Shawnee, Ohio, on the Z. & W. and B. & O. R. R., and is operated by the above named Company. Stephen Gould, Shawnee, Ohio, is superintendent, and E. W. Davis, Shawnee, O., is mine foreman. Shaft opening, 60 feet deep, penetrating the No. 4 seam of clay, which is from 5 to 8 feet thick. Fan ventilation; 19 miners and 7 day hands employed. Inspected July 7th, and found in poor condition on account of roadway to fan shaft having fallen and become dangerous, shutting off principal airway; requested that new shaft be sunk near head of works both for air and escapement way, which was agreed to. Visited mine Aug. 3rd; found shaft nearly completed, but stopped on account of water, which was being removed as rapidly as conditions would permit.

NO. 268.

Located one-half mile north of Rendville, on the T. & O. C. R. R. Operated by the Sunday Creek Coal Co., Columbus, O. Harry Kelly, Corning, Ohio, is superintendent, and Jos. Lyman, same place, is mine boss. Slope opening, 400 feet in length, to No. 6 seam of coal, which is about 14 feet thick; ventilated by fan. Machine mining, with 255 loaders, 16 cutters and 60 day hands employed. Inspected Oct. 5th and found in excellent condition except second opening, which was requested made as soon as possible. Visited again Nov. 11th to investigate death of John Smith, who was killed while attempting to jump on a motor trip. The mine on this occasion was found in good condition and manway made.

FURNACE.

Located at Shawnee, Ohio, on the Z. & W. and B. & O. Rys. Operated by Griffiths & Abram. Ed. Abram, Shawnee, O., is superintendent and mine boss. Drift opening, penetrating No. 6 seam of coal, which is about 5 feet thick. Ventilated by furnace basket. Coal is mined by picks; 24 miners and 5 day hands employed. Two inspections were made, July 6th and Oct. 3rd; on first visit mine was found in poor condition owing to the inlet being located beyond the old works by which this mine was surrounded; requested erection of a few brattices to shut off foul air, and better fire maintained at furnace basket. On last visit conditions were somewhat improved, and as the mine is about exhausted all has been done that present conditions will permit for the safety and ventilation of the mine.

FOURTH DISTRICT.

THOS. McGOUGH,

MONROE, BELMONT AND HARRISON COUNTIES, AND A
PORTION OF JEFFERSON.

(295)

ANNUAL REPORT

HON. GEO. HARRISON, *Chief Inspector of Mines, Columbus, O*

DEAR SIR:— The report of the Fourth District for 1905, is hereby respectfully submitted to you, showing the location of the mines, their management, the number of visits made for inspection, and for investigation of accidents, which I regret to report have been thirty-nine (39). Twenty-six (26) were killed by falls of stone, four (4) by mine cars, two (2) by mining machines, two (2) from coming in contact with electric wires, one (1) from powder explosion, three (3) from a boiler explosion on the outside of a mine, and one (1) from being dragged into machinery in the power house. Of these, twenty-eight (28) were non-English speaking men as compared with eleven (11) English speaking. Of the former, twenty-three (23) were killed by fall of roof or stone at the face of their rooms, as compared with three (3) English speaking men.

These appalling figures should emphasize the fact that something should be done to prevent wholesale slaughter. It is impossible to make and enforce laws for protection unless they can be made to understand the remedy possible seems to be to keep them out of the mines, or not allow them to work unless with an experienced guide who will assume some responsibility for their safety. Two were killed by electric wires, one with powder, which

he was carrying in a stone jug, when he fell, breaking it, and the powder ignited from his lamp, causing an explosion. Men should be compelled to carry powder in metallic vessels only. Three were killed by a boiler explosion on the outside of the mine. Of the English-speaking men, besides the three killed by falls of stone, three were killed by cars, two with mining machines, one in power house by machinery, and two by boiler explosion.

Not only are the persons who cannot be made to understand the English language menaced by the presence of stone in the mines in this vein of coal, but all the modern appliances now used in mining are a source of danger, as they have little or no knowledge of electricity, or of mining machinery, and often endanger themselves and others unnecessarily. As all the mines of any importance are installing improved methods for handling coal, the danger is bound to increase. The stone, however, still remains the worst danger, and if some action is not soon taken, fatalities will be enormously increased. It is next to impossible to protect a man by law, if he is careless of his own safety and is aware of the danger; yet there is a difference if the person does not know the dangers which lurk in the mines at all times. The latter should be protected by law.

The mines have worked fairly steady during the past year, with good prospects at the present time for a continuation of same.

Relations with both miners and operators have been uniformly pleasant.

Thanking you for advice and assistance rendered, I am,

Very truly yours;

THOMAS MCGOUGH, Bridgeport, Ohio,

Inspector Fourth District.

BELMONT COUNTY.

MOORES RUN.

Located on C., L. & W. R. R., near Bridgeport. Owned and operated by Moores Run Coal Co., Wheeling, W. Va. F. P. Jones, Wheeling, W. Va., is superintendent, and Wm. Heller, Bridgeport, O., mine boss. Seven visits were made. New opening has been made, new tippie erected and retarder installed, and various other improvements noted. Had some trouble on several occasions between committee and management about the scales; they were tested and found incorrect, but the Company secured an expert and they were put in order. Mine in fair condition. Fan ventilation. Drift opening; coal $5\frac{1}{2}$ ft. high; No. 8 seam; electric haulage. Sixty-seven miners and 17 day men employed.

WHEELING CREEK NOS. 1 AND 2.

Located on C., L. & W. R. R., about two miles west of Bridgeport. Owned and operated by Lorain Coal & Dock Co., Cleveland, O. The old No. 1 opening was abandoned about a year ago, but new one has been made, which is called Boyd's, or Wheeling Creek No. 2. Both mines use the same tippie and are connected. Boyd's opening has an electric, and Wheeling Creek a steam fan. Five visits made and both mines found in good condition. Three fatal accidents occurred. Three hundred and twenty-four miners and 62 day men employed. J. E. Waters, Bridgeport, O., is superintendent, and Gilbert Hanson, Bridgeport, O., mine boss. Drift opening, No. 8 seam of coal, $5\frac{1}{2}$ feet high.

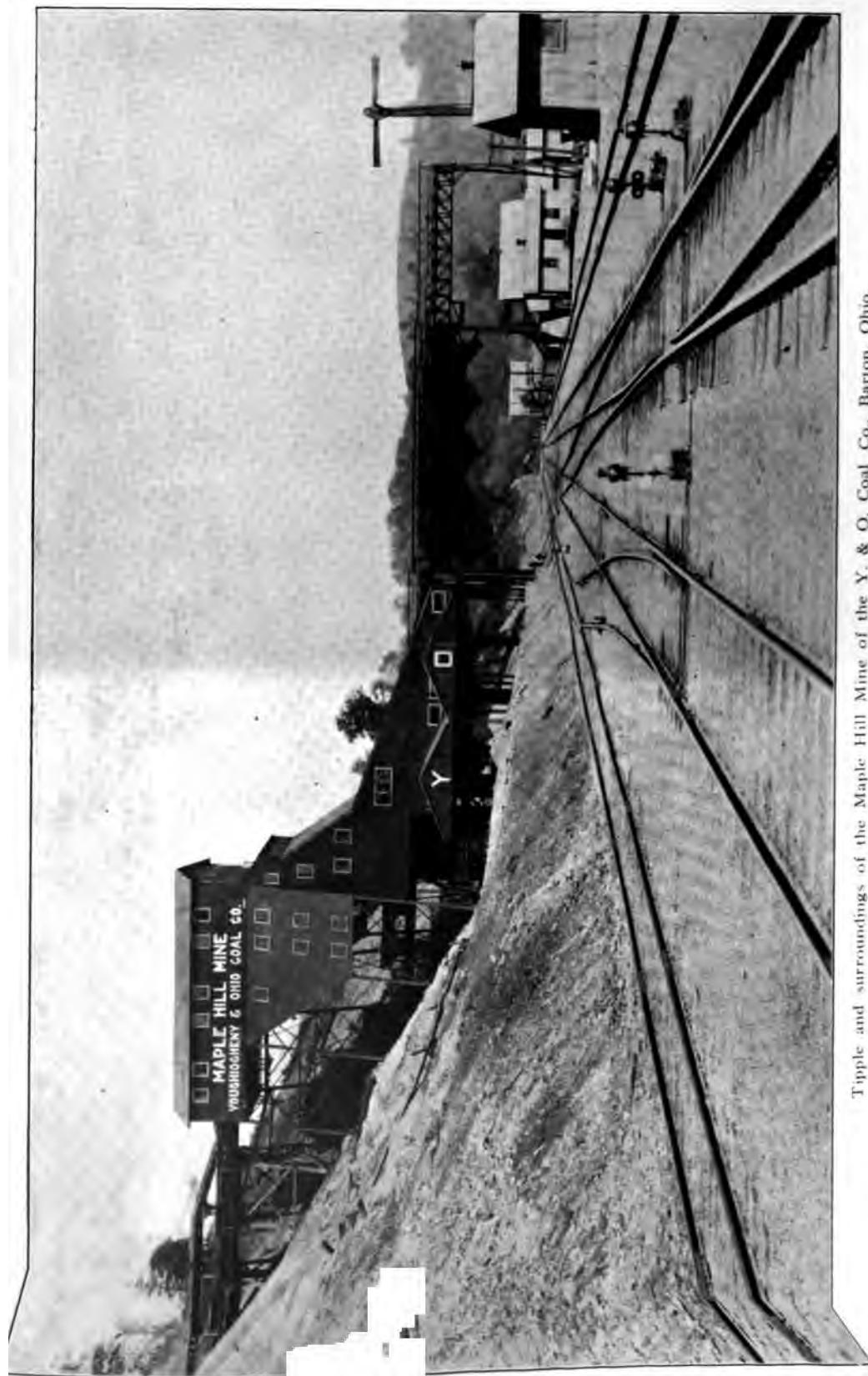
LANSING NO. 1 AND NO. 2.

Located on C., L. & W. R. R., near Lansing, O., and owned by same Company as Wheeling Creek mines. Jas. Johnson, Bridgeport, O., is superintendent, and Wm. Slater, Blaine, O., is mine boss. No. 2 has been merged with No. 1 during the year. Six inspections were made; one to investigate fatal accident, and one in company with the Chief Inspector, Attorney General Wade Ellis, and his Assistant, Mr. Miller, and Inspector Jas. P. Davis, in order that they could see present conditions in the mines and frame laws to better the same. Drift opening, No. 8 seam, coal $5\frac{1}{2}$ ft. high, electric haulage. Mine in very good order. Employs 239 miners and 45 days men. Has fan ventilation.

CRESCENT NOS. 3, $3\frac{1}{2}$, AND 4.

Located on same railroad, and owned by same company as Wheeling Creek and Lansing mines. Jos. Birkbeck, Bridgeport, O., is superintendent, and Geo. Halliday and Richard Dellbridge, Crescent, O., are mine bosses. Coal is dumped over same tippie. Six visits made and condi-





Tipple and surroundings of the Maple Hill Mine of the Y. & O. Coal Co., Barton, Ohio.

tions were fair. Four hundred and twenty-two miners and 111 day men employed. Drift opening, No. 8 seam, coal $5\frac{1}{2}$ ft. high. Fan ventilation.

CRESCENT NO. 2 $\frac{1}{2}$.

Under same management as above mine. Two visits were made, and conditions were the same. Wm. Embleton, Blaine, O., is mine boss. One hundred and thirty-five miners and 30 day men employed.

MAPLE HILL MINE, BARTON, O.

The following cut shows the tipple of the Maple Hill mine, located at Barton, O., which is owned and operated by the Y. & O. Coal Co., Cleveland, O. Frank Osborn is President, T. W. Jones Supt., and Wm. Wagner mine boss.

This mine was bought a few years ago by the Y. & O. Coal Co., who now own about 12,000 acres of the No. 8 Pittsburg seam of coal, and the workings of this mine penetrate into part of this large acreage. The mine when purchased was equipped with a tipple and sidings not suitable for the output of a large tonnage. The B. & O. R. R., when improving its tracks between Bridgeport and Ulrichsville, found that in order to make the necessary improvements, the tipple and sidings were interfering with their plans and grades established, and as a result thereof the Company found it necessary and advantageous to erect a new tipple. The present tipple is built entirely of steel and equipped with all the modern improvements, and also does away with an incline where coal was run down to former tipple. As is noticeable on the cut, the tipple extends across the railroad tracks, and that part is used for the purpose of coaling railroad engines. Other property of this Company consists of a mine about one-half mile south of this place which is called the Barton mine, and another the Florence mine, located about two miles Northwest of Martins Ferry on a branch connected with the C. & P. Railroad. This is a new mine and preparations have been made in the building of the tipple and other equipments to handle a larger output than any other mine in Eastern Ohio. All three mines produce machine coal exclusively, are modern in every respect, and electricity is used to the greatest extent as the motive power. This Company is one of the greatest producers of the No. 8 Pittsburg coal in Eastern Ohio.

MAPLE HILL.

Situated on C. L. & W. R. R., near Barton, O. Owned and managed by Youghioghenny & Ohio Coal Co., Cleveland, O. T. W. Jones, Barton, O., is superintendent, and Wm. Wagner, same place, is mine boss. Eight inspections made, and on first three, conditions were unsatisfactory both as to ventilation and timbering. Conditions much improved on last visit.

This mine has had a very serious pipe fire, and while in progress several visits were made, one in company with Chief Inspector Geo. Harrison. Fire was out at close of year. One hundred and fifty miners and 37 day men employed. Drift opening, fan ventilation, No. 8 seam, coal 5 to 5½ ft. high. Electric haulage.

BARTON.

Located on same railroad, near Barton, and is owned and operated by same company as Maple Hill mine. W. A. Williams, Barton, O., is superintendent, and Harry Kirkpatrick, Barton, O., is mine boss. Ten inspections were made; the first, on complaint that cross-cuts were filled up before another one was made, which was found to be the case, and management was ordered to observe the law. Scales were also tested and found incorrect. Expert was advised. Three fatal accidents occurred, one from explosion of powder, one from miner's drill coming in contact with electric wire, and one caused by fall of soapstone. A visit was made in this mine in company with Chief Inspector Harrison, Attorney General Ellis, his assistant, Mr. Miller, and Inspector Davis, to examine the mining conditions and frame laws to better the same. Ventilation has been unsatisfactory throughout the year, but management is trying to improve matters. Fan ventilation; 259 miners and 59 day men employed. Electric haulage, and small electric motors used to gather the coal. Drift opening, No. 8 seam, coal 5½ ft. high.

BOGGS NO. 2.

Located on St. Clairsville branch of the C. L. & W. R. R. Owned and operated by E. N. Boggs, Barton, O. Dan Harper, Barton, O., mine boss. Four visits made, one to investigate fatal accident caused by stone. Mine was found in fair order. Ninety-three miners and 23 day men employed. Drift opening, fan ventilation, No. 8 seam. Coal is 5½ ft. high. Motor haulage.

TAGGARTS.

Situated near Boggs mine. Owned and operated by Barton Coal Co., Cleveland, O. Geo. Green, Barton, O., is superintendent and mine boss. Electric and air machines are used, together with electric motor. Drift opening, No. 8 seam. Coal 5½ ft. high. Three inspections were made and mine found in fair order. Eighty-seven miners and 37 day men employed.

LYDIA.

Located near Maynard, O., on C. L. & W. R. R. Owned and operated by Purseglove Coal Co., St. Clairsville, O. J. S. Purseglove, St. Clairsville, O., is superintendent, and S. Purseglove, same place, mine boss. Drift opening into No. 8 seam, coal 5½ ft. high. Three visits were

made during the year, and on each occasion found carelessness in regard to making breakthroughs at proper distance, and brattices and doors being kept in good order. Last inspection was made in company with Chief Inspector Harrison, and several miners were found burning bad oil; they were warned that prosecution would follow if this occurred again. Also repeated orders in regard to making breakthroughs at proper distance. Compressed air machines are used, with horses for hauling the coal. Furnace ventilation; 102 miners and 30 day men employed.

TROLLS NO. 1.

Located on Wabash R. R., near Maynard, O. Owned by Troll Bros. Coal Co., St. Clairsville, O. Drift opening, No. 8 seam, coal $5\frac{1}{2}$ ft. high. Jesse Troll is superintendent, and Evan Evans mine boss, both of St. Clairsville, O. Three visits were made, one to investigate fatal accident. Ventilation has been unsatisfactory all year, and has been made much worse by carelessness in regard to attending to furnace and keeping up the doors and brattices. Orders were given, which if attended to, will improve matters. Furnace ventilation; 150 miners and 25 day men employed. Mule haulage. New power house is being built and it is intention of Company to make this a machine mine with electric haulage.

TROLLS NO. 2.

Located one mile from No. 1. Owned by same parties, with James Sklenar, Maynard, O., mine boss. Pick mine, drift opening, No. 8 seam, coal $5\frac{1}{2}$ ft. high. Two inspections made. Mine suspended greater part of the year. Preparations are being made to make this a machine mine. Has furnace ventilation; 75 miners and 12 day men employed.

TROLLS NO. 3.

Located opposite No. 2. Coal is run over same tipple. This mine has also been suspended greater part of the year. A few men are working in the entries.

COLUMBIA.

Located near Fairpoint, O., on C. L. & W. R. R. Owned and operated by Columbia Coal Co., Akron, O. David Selway is superintendent, and Henry Selway mine boss, both of Fairpoint, O. Drift opening into No. 8 seam. Coal is $5\frac{1}{2}$ ft. high. Two inspections were made and mine found in fair order. Electric machinery and motor installed during the year. Employs 75 miners and 17 day hands. Furnace ventilation.

BLACK OAK.

Located near Lafferty, on C. L. & W. R. R. Shaft mine, 80 ft. deep. Owned by Kennon Coal Co., Cleveland, O. John Whalen, Flushing, O.,

is superintendent, and Peter Lowther, same place, is mine boss. Four visits made. On first visit found new slope had been completed and repairs made on fan. A fire boss was ordered as mine generates gas. On last visit orders had been complied with. One fatal accident occurred. Shaft opening, fan ventilation, motor haulage. Coal is $5\frac{1}{2}$ ft. high. Employs 214 miners and 14 day men.

KENNON.

Located near Flushing, O., on same railroad as Black Oak. Managed by same company, with John Millwood, Flushing, O., mine boss. Drift opening, No. 8 seam, coal 4 ft. high. Electric haulage and machines, fan ventilation. Two visits were made and mine was unsatisfactory, both as to ventilation and drainage. Orders were given, which if carried out, will remedy these defects. Sixty-four miners and 24 day men employed.

SUMMIT NO. 1 AND NO. 2.

Situated near Flushing, O., on C. L. & W. R. R. Owned by Summit Coal Co., Cleveland, O. Mines have worked very little during the year and have changed mine bosses several times. At end of year, John McGinley, Flushing, O., had charge. Drift opening, fan ventilation. Compressed air machines. Mule haulage. No. 8 seam, coal $3\frac{1}{2}$ ft. high. Employs 15 miners and 8 day men.

BUCKEYE.

Located between Flushing and Holloway, O., on C. L. & W. R. R. Operated by Buckeye Coal Co., Cleveland. Lewis Nixon, Flushing, O., is both superintendent and mine boss. Two visits made. New fan will be erected, and new opening has been completed. Drift mine, No. 8 seam, coal $3\frac{1}{4}$ ft. high. Compressed air machines in use; furnace ventilation. Employs 32 miners and 19 day men.

FLUSHING.

Located on C. L. & W. R. R., at Flushing, O. Owned by Flushing Coal Co., Flushing, O. W. G. Williams is superintendent, and Wm. Evans mine boss, both of Flushing, O. Two inspections made and mine found in fair order. Has been worked very little during the year. Compressed air machines in use; motor haulage. Drift opening, No. 8 seam of coal, 4 ft. high. Fan ventilation; 36 miners and 10 day men employed.

SCHICKS.

Located on B. & O. R. R. Owned by M. J. Schick Coal Co., Bellaire, O. Drift opening, No. 8 seam, coal about 5 ft. high. Pick mine. Coals

engines on B. & O. R. R. Has fan ventilation. Ed. Conoway, Klee, Ohio, is mine boss. Mine in fair order throughout the year. Sixty-two miners and 15 day men employed.

NEFFS NO. 1.

Located near Neffs, O., on B. & O. R. R. Managed by Neff Coal Co., Neff, O. Franklin Neff is superintendent, and John Petrel mine boss, both of Neff, O. Drift opening into No. 8 seam, coal $5\frac{1}{2}$ ft. high. Two inspections made and mine found in fair order. Electric haulage; 130 miners and 34 day men employed.

NEFFS NO. 2.

Located on St. Clairsville branch of the B. & O. R. R. Owned and managed by same company as No. 1. John Lovejoy, Steel, O., is mine boss. Drift opening into No. 8 seam, coal $5\frac{1}{2}$ ft. high. Entries still being worked, but power house is about completed. This mine has been worked very little since last report. Mine is in fair order. Twelve miners employed and 3 day men. Furnace ventilation.

O. & W. VA.

Located on St. Clairsville branch of the B. & O. R. R. Owned by Belmont Coal Co., Pittsburg, Pa. D. D. Mumro, Neffs, O., is superintendent, and Lawrence Gardner, same place, is mine boss. Drift opening, No. 8 seam, coal $5\frac{1}{2}$ ft. high. Fan ventilation. Exclusive pick mine. Three inspections made, and mine being suspended for several months it was in poor order. Employs 106 miners and 22 day men.

BLACK DIAMOND.

Located about one mile from O. & W. Va. mine. Owned and managed by same company. John Atkinson, Neffs, O., is mine boss. Drift opening, coal $5\frac{1}{2}$ ft. high. Four inspections made, one to investigate fatal accident. Electric machines have been installed, also electric motors to haul the coal. New tippie has been built and preparations are being made to sink new air shaft to improve the ventilation. Fan ventilation; 120 miners and 34 day men employed.

KINGS RUN

Suspended all year.

GLEN.

Located near Glencoe, O., on main line of B. & O. R. R. Managed by same company as Black Diamond and O. & W. Va. mines. John Crawford, Glencoe, O., is mine boss. Three visits made and mine found in good order. During the year electric machines were installed to replace air machines. Several brick battries were also built. One fatal

red. Slope opening, 100 ft. long, into No. 8 seam of coal, ch is high. Chain hoist, fan ventilation; 112 miners and 36 day n em L.

DELORA NO. 1.

near Glencoe, O., on the B. & O. R. R. Owned and operated by Manufacturers Fuel Co., Chicago, Ill. Ivan Johns, superintendent, and J. Thomas, mine boss, both of Glencoe, O. Two inspections made and mine found in good order. Shaft opening into No. 8 seam of coal, 65 feet deep. Coal is $5\frac{1}{2}$ ft. high. Fan ventilation, electric machinery; 239 miners and 68 day men employed.

D 2.

Suspended all year.

Located on main R., at Franklin, O. Owned by the Hart Coal Co., Fa at, Drift opening into No. 8 seam; coal is $5\frac{1}{2}$ ft. high. Mi at, all year with exception of a few weeks. In the latter as sold to J. C. McKinley Coal Co., Wheeling, W.

Situated on Ohio River, about 5 miles below Bellaire, O. Suspended.

PIPE CREEK.

Located on Ohio River, coal loaded on C. & P. R. R. Owned by Johnson Coal Co., Bellaire, O. J. F. Johnson, Bellaire, O., is superintendent, and Henry Johnson, Dillies Bottom, O., mine boss. Two inspections made and mine was in fair order. Employs 45 miners and 10 day men. Fan ventilation, rope haulage.

PULTNEY.

Located near Bellaire, O., on C. & P. R. R. Owned by G. M. Jones Coal Co., Toledo, O. Jacob Long superintendent, and Allen Truax mine boss, both of Shadyside, Ohio. Has electric haulage and machinery, with rope used on the slope. Fan ventilation. Five inspections made, the last in company with Chief Inspector Harrison, and found mine in fair order, but a great deal of carelessness in making cross-cuts at proper distances. Employs 113 miners and 36 day men. Slope opening, 150 ft. long. No. 8 seam, coal $5\frac{1}{2}$ ft. thick.

EMPIRE NO. 1.

Located near Bellaire, Ohio, on C. & P. R. R. Owned and operated by Empire Coal Co., Pittsburg, Pa. J. H. Sanford is superintendent, and Wm. Gully, mine boss, both of Bellaire, O. Six visits were made

and mine was in fair order. New fan has been erected, air shaft sunk, and new slope completed during the year. Two fatal accidents occurred. Slope opening, No. 8 seam, coal 5 ft. high; length of slope, 200 ft. Machine mine with electric haulage. Ninety-six miners and 35 day men employed.

EMPIRE NO. 2.

Located about one mile below No. 1, and owned and operated by same company, with Wm. Johnson, Bellaire, O., mine boss. Slope opening, 150 ft. long. Four visits made. Mine suspended for about six months. Has fan ventilation, electric and rope haulage; 75 miners and 31 day men employed.

EMPIRE NO. 6.

Located on B. & O. R. R., about 4 miles west of Bellaire, O. Operated by same parties as above mine. Drift opening, No. 8 seam, coal 5 ft. high. Has electric haulage, fan ventilation. Two visits were made and mine was in fair order. One fatal accident occurred. Tile brattices were being erected. Seventy-two miners and 34 day men employed.

GAYLORD.

Located on C. & P. R. R., about 4 miles above Martins Ferry, O. Owned and operated by Cleveland & Pittsburg Coal Co. Thos. Sauters, superintendent, and Jack Gallagher, mine boss, both of Martins Ferry, O. Drift opening into No. 8 seam of coal, $5\frac{1}{2}$ ft. high. Four inspections were made. At beginning of the year, mine was unsatisfactory, but new electric fan has been installed, and an air shaft is being sunk, which should improve conditions. One fatal accident occurred. The man was squeezed between the rib and a mining machine on the entry. One hundred and twenty-five miners and 38 day men employed. Motor haulage, with some electric machines in use.

CAPTINA.

Located on O. & W. R. R., about 22 miles below Bellaire, O. Owned by Captina Coal Co., Armstrong Mills, O. Wm. Rankin, Armstrong Mills, O., superintendent and mine boss. Shaft opening, 65 feet in depth. Fan ventilation, mule haulage. Two inspections were made, and with exception of some minor matters mine was in fair order. Have put in new cage and safety catches. Twenty-five miners and 7 day men employed.

NAIL MILL.

Located at Bellaire, O., and operated by Carnegie Steel Co., Pittsburg, Pa. Joe Donnelly, Bellaire, O., is superintendent and mine boss. Drift opening into No. 8 seam, coal 5 ft. high. Three visits made and mine found in good order, but very dusty; requested it sprinkled. One

fatal accident occurred. Fan ventilation, motor haulage, machine mine. Thirty-nine miners and 14 day men employed.

AETNA STANDARD.

Situated at Aetnaville, O. Owned by American Sheet & Tin Plate Co., Pittsburg, Pa. Roger Ashton, Martins Ferry, O., is superintendent and mine boss. Mine has been in its usual excellent order throughout the year. Drift mine, No. 8 seam, coal 5 ft. high. Mule haulage; 33 miners and 7 day men employed. Furnace ventilation. Picks are used to mine the coal.

TIN PLATE.

Located at Martins Ferry, O. Owned by American Sheet & Tin Plate Co., Pittsburg, Pa. C. A. Robinson is superintendent, and Lee Woods, mine boss, both of Martins Ferry, O. Drift opening, No. 8 seam, coal $5\frac{1}{2}$ ft. high. Fan ventilation. Electric haulage. Four inspections made; the first, in company with the Chief Inspector. Found some doors needed, also some safety holes along motor road; these were ordered attended to, also repeated orders for brick brattices. When next inspected orders had been complied with. Sixty-five miners and 13 day men employed.

LAUGHLIN.

Located at Martins Ferry, O. Owned by Whittaker-Glessner Company, Martins Ferry, O. Wm. Glessner is superintendent, and Chas. Woods mine boss, both of Martins Ferry, O. Mine idle greater part of the year on account of mill strike. Fan ventilation, mule haulage; 22 miners and 6 day men employed.

LORENA.

Situated on Wabash R. R., $3\frac{1}{2}$ miles south of St. Clairsville, O., on what is known as Jug Run. Owned and operated by Carlton Coal Co., St. Clairsville, O. Drift opening into No. 8 seam, coal $5\frac{1}{2}$ ft. high. Fan ventilation. John Leonard is superintendent, and Lee Howells mine boss, both of St. Clairsville, O. Three visits were made, and found great carelessness in regard to making breakthroughs at proper distance. On Nov. 1st had fan in operation, but doors and brattices were behind and cross-cuts too far apart. On last visit was accompanied by the Chief Inspector, and found no attention had been paid to orders given on previous visits. Company was again cautioned, but it probably will be necessary to resort to the law to make them obey orders. Electric machinery has been installed. Work three shifts; 30 miners and 9 day men employed.

PROVIDENT.

Situated on Wabash R. R., near St. Clairsville, O. Owned by Provident Coal Co., Cleveland, O. Shaft opening, 85 ft. deep into No. 8 seam. David Thomas is superintendent, and Jos. Hall mine boss, both of St. Clairsville, O. Has fan ventilation, electric haulage. New steam fan (Capell) and electric machinery have been installed. Six inspections made; the first, on occasion of a boiler explosion on top, which killed three men. Two others were killed during the year by cars. Mine was in fair order, but have had great trouble in getting cross-cuts made at proper distances; at end of year law is being obeyed. One hundred and fifty miners and 53 day men employed. On last visit was accompanied by Chief Inspector Harrison.

MORGANS.

Located at Bellaire, O. Domestic mine leased by Malley & Johnson, Bellaire, O. Drift opening, No. 8 seam, coal $5\frac{1}{2}$ ft. high. Furnace ventilation, mule haulage. Two visits made, one to investigate fatal accident. Ordered second opening made. Eleven miners and 4 day men employed.

LONG & WINDER.

Small domestic mine located at Pinch Run near Bellaire, O. Owned and operated by above parties. Shaft opening, 18 ft. deep. Had no second opening and boilers were too near pit mouth. Three visits were made and these matters corrected. Fan ventilation; 4 miners and 1 day man employed.

FLORENCE.

Situated on the C. & P. R. R., four miles from Martins Ferry, O., on what is known as Glens Run. New mine, owned by Youghioghenny & Ohio Coal Co., of Cleveland, O. M. H. Sharp is superintendent, and Wilfred Sowden mine boss, both of Martins Ferry, O. Drift opening into No. 8 seam, coal $5\frac{1}{2}$ ft. high. Visited three times, once in company with Chief Inspector, and mine was in good order. Have only been driving entries this year. This will be a large mine with all modern improvements. Fan ventilation; 16 pick miners and 8 day men employed.

HARRISON COUNTY.

CLOVER LEAF.

Situated on P., C., C. & St. L. R. R., near Bowerstown, O. Owned and operated by the Cuyahoga Coal Co., Cleveland, O. Drift opening into No. 6 vein of coal, 3 ft. high. Mine has been suspended nearly all year.

EWING.

Situated on W. & L. E. R. R., near Ginther. Owned and operated by Pittsburg Block Coal Co., Pittsburg, Pa. A. E. Reppert is superintendent, and H. D. Reppert mine boss, both of Ginther, O. Drift opening, No. 8 seam, coal about 5 ft. thick. Electric haulage, fan ventilation; 68 miners and 20 day men employed. Three visits made and mine found in poor order.

ADENA.

Located on W. & L. R. R., about one mile from Adena, O. Owned and operated by Adena Mining Co., Adena, O. Geo. Deike is superintendent, and Noble Eastham mine boss, both of Adena, Ohio. Drift opening into No. 8 seam, coal 5 ft. high. Fan ventilation, electric haulage; 40 miners and 6 day men employed. Three inspections made and mine found in good order.

ROBY NO. 1.

Located on W. & L. E. R. R., at Robyville, O. Owned and operated by Roby Coal Co., Cleveland, O. Wm. Moke is superintendent, and John Eagan mine boss, both of Robyville, O. Drift opening, No. 8 seam, coal 5 ft. high. Fan ventilation, electric haulage. Four visits made, and in early part of the year conditions were very unsatisfactory, but were greatly improved on last visit. Employs 140 miners and 33 day men.

ROBY NO. 2.

Owned and managed by same parties as No. 1, and located near same. Four visits were made and mine was in fair order, but was obliged to call attention to the law regarding 60 ft. breakthroughs; superintendent promised they should be made at proper distances hereafter. Employs 108 miners and 17 day men.

TIPPECANOE.

Located on C. L. & W. R. R., near Tippecanoe, O. Owned and operated by S. T. Crapo Coal Co., Detroit, Mich. Geo. Selway, Tippecanoe, O., is superintendent and mine boss. Drift opening into No. 7 seam of coal, which is from 3 to 8 ft. high. Pick mine, with furnace ventilation; electric haulage. Two visits were made and mine found in fair order. A new company has purchased this mine, as given above. Employs 30 miners and 11 day men.

FREEPORT.

Located on C. L. & W. R. R., near Freeport, O. Owned and operated by Freeport Coal Co., Freeport, O. Slope opening into No. 7 seam of coal. Employs 5 miners and 4 day men.

JEFFERSON COUNTY.

WALNUT HILL NO. 1.

Located on C. & P. R. R., near Yorkville, O., owned by Ohio & Pa. Coal Co., Cleveland, O. Wm. Neath is superintendent, and Thos. Evans mine boss, both of Yorkville, O. Drift opening into No. 8 seam of coal, which is 5 ft. high. Machine mine with fan ventilation and electric haulage. Four visits were made and mine found in fair order. One fatal accident occurred, caused by trolley wire. Employs 77 miners and 28 day men.

WALNUT HILL NO. 2.

Located near No. 1 mine, and owned and managed by same parties; has same ventilation and haulage. Three visits were made and mine was in fair order. New electric fan installed during the year; 39 miners and 7 day men employed.

RUSSELL.

Located on C. & P. R. R., near Tiltonville, O. Owned and operated by Russell Coal Co., Steubenville, O. Geo. McKitterick, Steubenville, O., is superintendent, and Seth Williams, Tiltonville, O., mine boss. Drift opening, No. 8 seam, coal 5 ft. high. Has furnace ventilation, mule haulage. Four visits were made and mine was in fair order. Worked about half time; 100 miners and 20 day men employed.

KELLEYS NO. 2.

Located on C. & P. R. R., near Warrenton, O. Owned and operated by Lewis Coal Co., Warrenton, O. Wm. Nixon, Rayland, O., is superintendent and mine boss. Drift opening, No. 8 seam, coal 5 ft. high. Has fan ventilation and electric haulage. Three visits made and mine was in fair order. Employs 45 miners and 11 day men.

RUSH RUN NO. 1.

Situated on C. & P. R. R. Owned by Glens Run Coal Co., Cleveland, O. Perry Maurer is superintendent, and John Coss mine boss, both of Rush Run, O. Drift opening into No. 8 seam, 5 ft. high. Has furnace ventilation and electric haulage. Four inspections were made and mine was in fair order. Employs 94 miners and 29 day men.

RUSH RUN NO. 2.

Situated about three miles from No. 1, and the same distance from C. & P. R. R. Owned by same company, with Wm. Harrison, Rayland, O., mine boss. Six visits were made; one to investigate fatal accident

and two to test the scales, which were found correct. Mine on other visits was found in good order. New fan has been installed, and two mining machines working. Thirty-eight miners and 15 day men employed.

RUSH RUN NO. 3.

Located near No. 2, and both mines dump over the same tippie. Six visits were made and mine found in fair order, but management is very careless in having cross-cuts at proper distances; they were cautioned about this. One fatal accident occurred. Mine was inspected on Oct. 27th in company with Chief Inspector Harrison and Inspectors Miller and Davis, and found in fair condition. Has fan ventilation and electric haulage; 51 miners and 17 day men employed.

EDGAR NO. 1.

Located on W. & L. E. R. R., near Glens Run, O., owned by same company as Rush Run 1, 2 and 3. Thos. Thomas is superintendent, and Robert Nicholson mine boss, both of Dillonvale, O. Drift opening into No. 8 seam, coal 5 ft. high. Has fan ventilation and electric haulage. Machine mine, using electricity. Two inspections made, one to investigate fatal accident, and mine was in fair order. One hundred and two miners and 29 day men employed.

EDGAR NO. 2.

Located near No. 1, owned, operated and managed by same parties, coal being dumped over same tippie. Several visits were made and mine found in fair order. Two fatal accidents occurred. Employs 128 miners and 32 day men.

DOROTHY.

Located near Warrenton, O., on W. & L. E. R. R. Owned by M. L. Williams Coal & Coke Co., Pittsburg, Pa. Geo. Anderson, Martins Ferry, O., is superintendent, and Jos. Robinson, Rayland, O., mine boss. Drift opening, No. 8 seam, coal 5 ft. thick. Mine was suspended during the greater part of the year. Employs 35 miners and 10 day men.

PORTLAND.

Located on W. & L. E. R. R., near Portland, O. Owned by Portland Coal Co., Wheeling, W. Va. Lloyd Darrel is superintendent, and E. Applegarth mine boss, both of Rayland, O. Drift opening, No. 8 seam, coal 5 ft. high. Furnace ventilation, mule haulage. Two visits were made and mine in fair order. Employs 62 miners and 21 day men.

CONNOR NO. 1.

Located on W. & L. E. R. R., at Connorsville, O. Owned and operated by the W. & L. E. Coal Co., Cleveland, O. Fred Hornickel, Dillon-

ville, O., is superintendent, and Thos. Cox, Connorville, O., mine boss. Drift opening, No. 8 seam, coal 5 ft. high. Fan ventilation, motor haulage. Three visits made and conditions were fair. Employs 132 miners and 26 day men.

CONNOR NO. 2.

Located near No. 1 and is owned and managed by same parties. Same number of visits were made. One fatal accident occurred during the year, caused by stone. Employs 115 miners and 22 day men.

DILLON NO. 2.

Located on same railroad as Connor mines, owned by same company, with same superintendent in charge. E. F. Wait, Dillonvale, O., is mine boss. Drift opening, No. 8 seam, coal 5 ft. high. Fan ventilation, electric haulage. Three inspections made. One fatal accident occurred. Employs 212 miners and 62 day men.

LONG RUN.

Owned, operated, and managed by same parties as Dillon No. 2, with Wm. Nichols, Startle, O., as mine boss. Electric haulage. Mine suspended part of the year. Three visits were made. Scales were tested and found correct. Employs 99 miners and 46 day men.

ROBY NO. 3.

Located at Ramsey, O., on W. & L. E. R. R. Owned by Roby Coal Co., Cleveland, O. Wm. Moke, Robeyville, O., is superintendent, Geo. Chamberlain, Ramsey, O., assistant mine boss, and Evan Evans, Ramsey, O., mine boss. Drift opening, No. 8 seam, coal 5 ft. high. Fan ventilation, electric haulage. Six visits were made, two to test scales, which were incorrect. An expert was called and the trouble settled. Mine was in fair order at close of year. One fatal accident occurred. Employs 77 miners and 39 day men.

ROBY NO. 4.

Located near No. 3, owned and managed by same company, with Wm. Waldron, Ramsey, O., mine boss. Same tippie. Conditions same as No. 3. Fan ventilation. One fatal accident occurred. There is great cause for complaint at these mines about making cross-cuts at the proper distances. Repeated orders have been given on this subject and we hope they will be obeyed in the future. Employs 45 miners and 20 day men.

ROBY NO. 5.

Located near No. 3 mine, owned by same parties, and conditions are similar. Same cause for complaint about cross-cuts, but at close of year

were being made at proper distance. Employs 115 miners and 18 day men.

DUNGLEN.

Located near Mt. Pleasant, O., on W. & L. E. R. R. Owned and operated by Morris & Poston Coal Co., Dunglen, O. L. D. Poston is superintendent, and E. W. Dowler mine boss, both of Dunglen, O. Drift opening, No. 8 seam, coal 5 ft. high. Fan ventilation, electric haulage. Two inspections made and mine was in good order, but break-through law was utterly neglected. Warned management on last visit that prosecution would follow if law was not observed. Employs 264 miners and 55 day men.

DUNGLEN NO. 2.

New mine, located one-half mile from No. 1. Coal will be dumped over same tippie. Have fan on the grounds ready to erect, and this will soon be one of our large mines. Employs 22 miners and 2 day men.

O'NEIL.

Located between Adena and Long Run, O., on W. & L. E. R. R. Owned by O'Neil Coal Co., Adena, O. Drift opening, No. 8 seam, coal 5 ft. high. Mule haulage, fan ventilation. J. S. O'Neil is superintendent, and John Daily mine boss, both of Adena, O. Two visits were made and mine found in fair order; had trouble with water on the roads, but this was improved on last visit. Employs 106 miners and 28 day men.

M'FAYDEN.

Situated at Carmen, O., on the P., C., C. & St. L. R. R. Owned by Wayne Coal Co., Pittsburg, Pa. D. G. Wise is superintendent, and Andy Arrott mine boss, both of Carmen, O. Drift opening, No. 8 seam, coal about 4 ft. high. Fan ventilation, rope haulage; 110 miners and 17 day men employed. Mine in fair order. New inlet and air shaft completed.

VISITS IN JEFFERSON COUNTY, IN MR. DAVIS' DISTRICT.

PINEY FORK.

Investigated fatal accident to Geo. Spears, fireman in the power house, who on Aug. 6th went to sleep on the belt of the generator. The one which was running began to knock, and the engineer turned the steam on the idle one, on which the man was sleeping. He was dragged into the machinery and instantly killed. Mr. Davis was absent on his vacation at the time.

AMSTERDAM.

Visited in company with Chief Inspector Harrisont, Ass't Attorney General Miller, and Inspector Davis. Saw automatic doors in operation, also considered best way to prevent accidents from explosions, as this mine generates considerable gas, especially in entries.

U. S. MINES, AT BRADLEY.

In company with above mentioned parties, inspected these mines so they could have an idea of the dangers met with in mining coal in the No. 8 seam.

JEFFERSON NO. 1.

Visited with same parties and for same purpose. Also investigated fatal accident to a miner who was killed by stone.

U. S. MINES.

Investigated fatal accident to Parker Schmit, brakesman on the motor trip, who was killed by falling under the cars on Dec. 26th, on the stone dump outside the mine.

GUERNSEY COUNTY.

Visited several mines in company with Chief Inspector Harrison and Inspector W. H. Turner, in the Cambridge coal field, and find several new developments of late years in that county, which shows they have kept up with the progress in other parts of the state.

FIFTH DISTRICT.

W. H. TURNER,†

GUERNSEY, COSHOCTON AND TUSCARAWAS COUNTIES, AND
A PORTION OF NOBLE.

(315)

CAMBRIDGE, OHIO, January 1, 1906.

HON. GEO. HARRISON, *Chief Inspector of Mines, Columbus, Ohio.*

DEAR SIR: — I herewith submit my annual report of the Fifth Mining District, composed of the counties of Coshocton, Guernsey, and Tuscarawas, and Warren Township, Belmont County, and Monroe Township, Muskingum County. Springfield Township, Jefferson County, has been added to my district temporarily pending the appointment of a District Mine Inspector to succeed Mr. Jas. P. Davis, of that district, who resigned in December. A portion of my time has also been spent in the Third Mining District during the indisposition of Mr. Jno. T. Dolan, the Inspector in charge, details of which will be found in the description of mines visited by me during the year.

Seams of coal known as numbers five (5), six (6), seven (7) and eight (8) are mined in this territory herein specified. The number five (5) seam is worked by drift openings at Mineral City in the northern portion of Tuscarawas County, and varies in thickness from two feet ten inches to five feet. It is underlaid with a superior quality of fire clay from five to eight feet in thickness, which is mined and manufactured extensively into all products made from clay. The Number Five (5) seam of coal is reached by shaft 271 feet deep at Amsterdam, Jefferson County, where fire damp generates freely, and the coal is unusually inflammable. Repeated mine fires have occurred, causing delay and anxiety while extinguishing them. The strictest discipline should be maintained in guarding against what might prove to be a disastrous conflagration.

The number Six (6) seam of coal is mined in Coshocton and Tuscarawas Counties, and in Knox Township, Guernsey County, varying in thickness from three to four feet, containing excellent fuelling qualities. Black damp is frequently found in these mines to such an extent as to require an excessive volume of air to secure healthy respiration. Fire damp generates in this coal seam when worked below water level. Its presence in Beaver Dam Number One and Goshen Shaft mines demonstrates this fact.

The Number Seven seam is mined in Guernsey County, and also in Noble, varying from five to seven feet in thickness. Frequent faults are encountered throughout this territory which adds to the cost of production, and debars, in some instances, a systematic and uniform system of operation. The shaft mines in this seam generate dangerous quantities of fire damp. The strictest precaution is exercised in dispelling its dangers, and no accident from this source occurred during the year. The Number Eight seam is mined in Warren Township, Belmont County, being four feet in thickness, with a solid soapstone top. The upper coal vein and ten inch soapstone overlaying this seam elsewhere are absent in this township. Electric machines mine the coal successfully and no gases have been encountered in these mines.

Two new mines have been opened up during the year, known as the White Ash and Little Trail Run, which are located in Guernsey County and are being equipped with fans and modern machinery.

The depressed condition of trade was responsible for the mines operating half time during the summer months, and several suspended operation indefinitely. All important mines of this district have adopted the most modern equipments and devices. All managers are anxious to avert accidents. The code of rules adopted and posted during the year resulted in a noticeable decrease in the number of fatalities where they were strictly enforced and obeyed. Hopes are entertained that laws will be so revised this session as to meet the progressive requirements of the coal industry and establish uniformity of action throughout the State in protecting life. Peace to the industry predominated this year by faithful allegiance of employer and employee to their agreements.

My official relations with operators and miners have been pleasant. Your many visits to the respective mines and wise counsel rendered was greatly appreciated by all.

Thanking you for your able assistance in all emergencies, I remain,

Very respectfully yours,

W. H. TURNER, Cambridge, Ohio,

Inspector Fifth Mining District.

BELMONT COUNTY.

COCHRAN NO. 1.

Is located near Barnesville, Ohio, on the B. & O. R. R., and operated by the Wm. A. Werner Coal Co., Zanesville, Ohio. Thos. Davey, Bailey's Mills, Ohio, is superintendent, and Chas. Hewey of the same place is mine boss. Drift mine penetrating the No. 8 seam of coal, which is 4 ft. thick, furnace ventilation, and employs 16 miners and 6 day hands. Two visits were made. On June 27th the miners were being transferred to the No. 2 mine as fast as places could be provided for them, in view of abandoning the pick work. December 27th found this mine abandoned, and the force of men engaged at work after the machines in mine Number Two.

COCHRAN NO. 2.

Situated near the No. 1 mine and the coal is dumped from the same tipple, managed by the same officials. Drift opening penetrating the No. 8 seam, which is 4 ft. thick. Furnace ventilation and employs 63 miners and 22 day hands. Visited twice. June 27th, conditions good. Dec. 27th, requested that all the openings in the No. 1 mine be sealed up to avoid any air from reaching the furnace through the abandoned works.

MEDIA.

Located near Barnesville, O., on the B. & O. R. R., and owned by the Media Coal Co., Fairmont, W. Va. Wm. Reid, Barnesville, O., is superintendent and mine foreman. Following a strike on May 23, 1904, this mine suspended operations, and tore down the engine chutes preparatory to getting a switch laid to enable them to ship their product. Visited twice. On June 28th, found the mine had resumed operations, dumping coal over a temporary tipple, pending the completion of a modern tipple then under construction. Nine miners and 6 day men are employed. Dec. 27th, mine found idle owing to various causes, the hill had slipped, seriously damaging the tipple; old works had been struck, flooding the mine, and the boiler had given out that ran the pumps.

COSHOCTON COUNTY.

CASSINGHAM NO. 2.

Located near Coshocton, O., on the W. & L. E. R. R., and operated by the Coshocton Coal Co., Cleveland, Ohio. R. M. Mason, Coshocton, O., is superintendent, and Oliver Channel, of the same place, is mine

boss. Drift to the No. 6 coal, which is from $3\frac{1}{2}$ to 4 ft. thick. Fan ventilation and employs 39 miners and 21 day men. Two visits were made. On June 19th, water from the old No. 1 mine was flooding the roads of this mine. A ditch was being cut in the old No. 1 mine for drainage and preparations to install an electric fan was in progress. Oct. 13th, fan was in operation and the water drained from the roads.

DRAKE NO. 2.

Located near Coshocton, O., shipment by rail having ceased. Operated by Thos. Williams, Coshocton, O. Coal is marketed for domestic purposes. Joseph Robson, mine boss, Coshocton, O. Four men are employed. October 11th, mine was found satisfactory.

CASSINGHAM NO. 3.

Located near the No. 2, the coal being dumped from the same tippie, and operated by the same Company. R. M. Mason, Coshocton, is superintendent, and W. M. Powers, same place, is mine boss. Drift, No. 6 seam, being from $3\frac{1}{2}$ to 4 ft. thick. Employs 24 miners and 13 day hands. Two visits were made. On July 19th, the top in the main entry was threatening danger and it was requested repaired by timbering. Oct. 13th, a fan had been installed, but little of the timbering had been done. Renewed the orders to the Company in writing.

ODEN VALLEY NO. 1.

Located near Conesville, O., on the P., C., C. & St. L. R. R., and operated by the Oden Valley Coal Co., Coshocton, O. G. W. Cassingham, Coshocton, O., is superintendent, and J. H. Fitch, mine foreman. Drift, No. 6 seam of coal, 3 to 4 ft. thick, furnace ventilation, employing 25 miners and 9 day men. On July 22nd conditions were satisfactory.

ODEN VALLEY NO. 2.

Located near No. 1 and coal will be dumped over the same tippie, owned and managed by the same Company. A drift opened this year, the air shaft was nearing completion. Five men were employed in developing.

MORGAN RUN NO. 3.

Situated near Coshocton, O., on the P., C., C. & St. L. R. R., and operated by the Morgan Run Coal Co., Cleveland, O. L. B. Piper, Coshocton, is superintendent, and Robt. McCormick, same place, is mine boss. Drift opening to the No. 6 seam of coal, which is about 4 ft. thick; 65 miners and 24 day men employed. July 18th, requested manholes made along the extension of the motor road and insisted that the miners post close to the face regardless of the safe indications of the top.

WADE NO. 3.

Located near Coshocton on the W. & L. E. R. R., and operated by the Wade Coal Co., Cleveland, O. Jas. Perkins, Coshocton, O., is superintendent and mine boss. Drift, No. 6 seam, from 3 to 3½ ft. thick. On July 18th, owing to impaired brattices and some recent changes in the air travel, the ventilation was deficient in some sections of the mine. Requested that the necessary improvements be made. Returned on July 20th to investigate a fatal accident caused by a fall of stone at a working face, and found my previous orders being complied with. Sixty-three miners and 26 day men are employed. Furnace ventilation is in use.

CONESVILLE NO. 4.

Situated near Conesville, O., on the P., C., C. & St. L. R. R., and operated by David Davis, of Conesville, O. J. G. Davis is superintendent and J. F. Murphy mine boss, both of Conesville. Slope penetrating the No. 6 seam from 3 to 4 ft. thick, fan ventilation, and employs 78 miners and 18 day men. July 27th and August 25th, mine found in good condition, and the punching machines doing successful work.

FRANKLIN.

Located near Franklin, Ohio, on the P., C., C. & St. L. R. R., and operated by the Columbus Coal & Mining Co., Columbus, O. F. N. Barnes, superintendent; R. N. Barnes, mine foreman, Franklin Station, Ohio. Drift, No. 6 seam, furnace ventilation, and employs 40 miners and 15 day men. July 21st, requested the furnace cleaned and ashes removed, and some obstructions in the air course removed and the furnace fired regularly.

HALL.

Located near Franklin, coal being dumped over the same tipple, operated by Samuel Kitchens & Co., and employs 8 men. On July 21st, the mine was found exhausted and abandoned.

ARNOLD NO. 1.

Located near Conesville, O., on the W. & L. E. R. R., and operated by the Arnold Coal Co., Columbus, O. Henry Johnson, Coshocton, O., is superintendent and mine boss. Drift, No. 6 seam, coal from 3 to 4 ft. thick, fan ventilation and employs 58 miners and 18 day men. On July 20th, conditions satisfactory, but advised that some obstructions be removed from the air inlet.

BEST.

Situated near Conesville, O., on the W. & L. E. R. R., and operated by the Best Coal Co., Coshocton, O. Christopher Hudson, Coshocton, O., is superintendent and mine foreman. Drift opening, No. 6 seam, from

4 to 5 ft. thick, and employs 50 miners and 12 day men. Visited April 14th and July 20th and found satisfactory on both occasions.

LOCUST GROVE.

Located near Conesville, O., on the W. & L. E. R. R., and owned by Jno. Williams, Coshocton, O. Visited July 20th and found suspended waiting for the railroad to grant a switch.

HAYWOOD.

Situated two miles from Coshocton, O., and operated by Haywood domestic trade. Employs 3 miners; ventilation natural. On Oct. 13th, conditions satisfactory, and advised that an obstruction be removed from the air course.

GUERNSEY COUNTY.

KINGSTON.

Located near Lore City, O., on the B. & O. R. R., and operated by the Morris Coal Co., Cleveland, O. J. P. Davis, superintendent, Cambridge, Ohio, and Jeremiah Pearson, Guild, O., is mine boss. Shaft opening to the No. 7 seam, one hundred feet in depth, the coal being from 5 to 6½ ft. thick, and is ventilated by an eighteen ft. Brazil fan. Two hundred and twenty miners and 87 day men are employed. Inspections were made July 26th and Sept. 29th, and on each occasion found conditions commendable.

OLD ORCHARD.

Situated at Danford, O., on the B. & O. R. R., and operated by the Morris Coal Co., Cleveland, O. J. P. Davis, Cambridge, O., is superintendent, and Alvy Alderman, same address, is mine boss. Shaft 48 ft. deep to the No. 7 seam, which is from 5 to 6 ft. thick, ventilated by a 16 ft. Brazil fan. One hundred and fifty-two miners and 61 day men are employed. June 20th, conditions were satisfactory; Sept. 26th, requested stoppings and doors conducting the air from the 17th entry to finish repaired.

IDEAL.

Located near Byesville, O., on the Penn. R. R., and operated by the Wills Creek Coal Co., Detroit, Mich. W. H. Davis, superintendent, Byesville, O., and Geo. Shaw, of the same place, is mine boss. Shaft opening 75 ft. deep to the No. 7 coal, which is 5 ft. 4 in. thick, a fan being the ventilating medium. Two hundred and fifty miners and 100 day men

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and employed. Two visits were made; on June 9th they were approaching the old abandoned Norris mine, intending to enter it to secure pillars. They had placed a pump in the air shaft and were removing the water to avoid all danger to life and property while tapping the flooded working. Oct. 16th, the ventilation, similar to the previous visit, was satisfactory.

WALHOUNDING.

Located at Pleasant City, O., on the Penn. R. R., and operated by the Wills Creek Coal Co., Detroit, Mich. W. H. Davis, Byesville, O., is superintendent, and M. S. Wolford, Buffalo, O., is mine foreman.

Shaft opening 125 ft. deep to the No. 7 seam, which is 5 and $5\frac{1}{2}$ ft. thick; the mine is nearing exhaustion, a large portion of the work now being the removing of pillars. Visited 14th, conditions were satisfactory and, a room that extended beyond high water mark caved to the ground, causing the miners to fear a threatening danger when the pillars were overflowed. After careful consideration of the situation, it was deemed necessary to post notices forbidding the miners from entering the mine when the surface referred to was overflowed by water, as a possible calamity. July 11th, conditions were commencing to show the inner workings for a mine nearing a finish. A man was called to the stairway and escapement shaft to have some repairs made in connection with same. The fact that only one fatal accident occurred in this mine during the year is evidence that precaution is being exercised by the miners and managers in the extensive pillar drawing under a treacherous roof. One hundred and fifty-five miners and 53 day men employed.

DETROIT.

Located near Ava, O., on the Penn. R. R., and operated by the Wills Creek Coal Co., Detroit, Mich. W. H. Davis, Byesville, O., is superintendent, and J. B. Morris, same place, mine boss. Shaft 185 ft. deep to the No. 7 coal, which is 6 ft. thick. Two hundred and fifty miners and 108 day men are employed. Three visits made during the year. January 19th and February 15th the mine was found in good condition. On July 8th found a few instances where the breakthroughs were not made at the 60 ft. point; requested them made before advancing further, and insisted on a strict observance of the law in the future.

BLUE BELL.

Located at Opperman, O., on the Eastern Ohio Branch of the B. & O. R. R., and was formerly owned and operated by the Opperman Coal Co., but about June 1st it was purchased by the Wills Creek Coal Co., Detroit, Mich. W. H. Davis, Byesville, O., is superintendent, and C. W. Lewis, Pleasant City, O., mine boss. Shaft opening 80 ft. deep to the No.

7 coal, which is 6 ft. thick; fan ventilation; employing 176 miners and 46 day men. Three visits were made. On January 2nd, owing to impaired brattices, ventilation was deficient on the 7th and 8th east entry; necessary repairs were requested. On February 4th, accompanied by Hon. George Harrison, Chief Inspector of Mines, and Thos. McGough, Inspector of the Fourth Mining District, a brief visit was made and the general conditions observed. On July 15th the mine was in excellent condition. After passing through a piece of sand and mud roof in the south entry, where it required solid timbering, a shaft was sunk, giving an additional outlet to the mine and also contributing greatly to the general safety of the miners.

MIDWAY.

Situated near Byesville, O., on the Penn. R. R., and was formerly operated by the Midway Coal Co. It is now owned and operated by the Wills Creek Coal Co., Detroit, Mich. W. H. Davis, Byesville, O., is superintendent, and E. R. Brooker, of the same place, is mine boss. Slope opening 100 ft. deep, piercing the No. 7 coal. Fan is the ventilating medium, and 78 miners and 18 day hands are employed. This mine has encountered faults during the year, largely increasing the expense of development and curtailing the output. Many yards of rock entry have been driven, but at this writing the prospects are favorable for a good coal field. Six visits were made during the year. January 5th, found the scales not properly adjusted. February 4th, accompanied by the Chief Inspector of Mines, Hon. Geo. Harrison, and Thos. McGough, Inspector of the Fourth District, conditions were found satisfactory. June 2nd, investigated the fatal accident whereby two lives were lost, while permanently timbering the landing near the slope bottom by a fall of rock. Sept. 22nd, requested that an escapement way be provided at least 100 ft. distance from present openings, which are only 36 ft. apart. The management agreed to make an opening at the back of the hill as soon as they could reach a ravine a short distance away. Dec. 7th, requested some minor improvements made and more attention given to keeping the mine doors closed.

IMPERIAL.

Located at Derwent, O., on the Penn. R. R., and was formerly operated by the Imperial Coal Co., of Cleveland, O. It is now owned and operated by the O'Gara Coal Co., Chicago, Ill. Jas. Orr, Byesville, O., is superintendent, and W. A. Oliver, of the same place, is mine boss. Shaft opening 110 ft. in depth to the No. 7 coal, which is from 5 to 6 ft. thick. Fan ventilation is in use, and 232 miners and 89 day men find employment here. Visited three times. April 13th, Chief Inspector Geo. Harrison met me at this mine to counsel as to the cave-in to the surface below high water mark. After considering all matters in detail, it was decided that notices were to be posted forbidding any person from entering the mine

when the bottom lands overlaying the mine was overflowed as the only assurance in guarding against a possible calamity. On May 15th, the notices were posted and the mine found in excellent condition. Nov. 24th, the conditions were commendable.

NICHOLSON NO. 1.

Is located near Cambridge, O., on the Penn. R. R., and was formerly operated by the Ohio Coal Co., Cambridge, O. Since Dec. 15th, 1905, it has been owned and operated by the O'Gara Coal Co., Chicago, Ill. Jas. Orr, Byesville, O., is superintendent, and Jos. Alloway, Cambridge, O., is mine foreman. Seven visits were made during the year. It is a drift opening, working the No. 7 seam of coal, which is from 4 to 6 ft. in thickness. It was opened in 1872, and is now one of the oldest mines working in Guernsey County. The limits of the Company's coal being reached about three years ago, and their inability to secure some adjacent coal on satisfactory or profitable terms, caused them to resort to the drawing of pillars in view of working home and its abandonment. After the entries leading to the adjacent coal had been weakened by pillar work, the Company's terms were accepted and the adjacent lands leased, and operations to reach the coal began. A creep is threatening that section of the mine, which in course of time will destroy the present exit to that coal field. Twenty-one miners and 11 day hands were employed. January 4th, tested the scales. February 4th, accompanied by Chief Inspector of Mines, Hon. Geo. Harrison, and Thos. McGough, a brief official visit was made to this mine. March 13th, an oil well had been drilled through the mine, which was cased below the coal. Returned March 14th, and requested the casing in the mine be surrounded by a brick wall, and the cavity filled with cement from floor to top, and cribs erected outside the wall. March 28th, the well was fixed as directed, and no indications of danger from its presence. June 6th, conditions satisfactory. Sept. 20th, old mine suspended; a little crop coal was being removed from the new drift. Nov. 15th, the old mine resumed and conditions were satisfactory.

NICHOLSON NO. 2.

Located near Byesville, O., on the Penn. R. R. and formerly owned and operated by the Ohio Coal Co., Cambridge, O.; it is now owned and operated by the O'Gara Coal Co., Chicago, Ill. Jas. Orr, Byesville, O., is superintendent, and E. W. Smith, same place, is mine boss. Shaft opening 65 ft. deep to the No. 7 seam of coal; a fan is the ventilating medium. Forty-six miners and 12 day hands are employed. The coal was reached Oct. 1, 1904, but owing to delay in securing a railroad switch shipment of coal and driving entries began about June 15th, 1905. Four visits were made. June 7th, switch and tipple were completed and cages being constructed. Oct. 5th, accompanied by Chief Inspector Har-

rison, cages were found without being equipped with safety catches. Notice was posted forbidding persons from riding on the cages until an improved safety catch was provided. Oct. 14th, the catches were on the cages and tested and approved, and the mine in good condition. Dec. 28th, the slope for travel was completed and general conditions commendable.

HARTFORD.

Located at Hartford, O., on the Eastern Ohio Branch of the B. & O. R. R., and operated by the Ellsworth Coal Co., Cleveland, Ohio. Harry Cameron, Buffalo, O., is superintendent, and Frank Blackburn, of the same place, mine boss. Shaft 80 ft. deep to the No. 7 seam of coal, which is 6 ft. thick. One hundred and forty-eight miners and 87 day men employed. Visited twice. June 29th, the mine had suspended operations indefinitely. May 1st and Oct. 24th, mine was found idle, remaining so until the close of the year herein reported.

TRAIL RUN.

Situated near Byesville, O., on the Penn. R. R., and operated by the Ellsworth Coal Co., Cleveland, Ohio. Harry Cameron, Buffalo, O., is general manager; Dennis Conroy, Robins, O., is superintendent, and Matthew Strauch, same place, is mine boss. Shaft 80 ft. in depth to the No. 7 seam of coal, which is $5\frac{1}{2}$ ft. in thickness. A 16 ft. fan, the first one erected in this county by Mr. Geo. Harrison, the present Chief Inspector of Mines, is still ventilating this mine successfully. One hundred and ten miners and 65 day men employed. Three visits were made. June 13th, found the north side abandoned, and the dangers over the north landing referred to in previous report remedied by posting through the middle of the track. Oct. 5th, Chief Inspector Harrison accompanied me on a brief official visit. Nov. 22nd, requested the inlet for air on the north side reduced to send a greater volume of air to the south side now in operation.

MURRAY HILL.

Located near Klondyke, on the B. & O. R. R., and operated by the Akron Coal Co., Akron, O. Wm. Rigby, Cambridge, O., is superintendent, and Clarence Long, Kipling, O., is mine foreman. Slope opening to the No. 7 coal, which is from 5 to 6 ft. thick. Fan ventilation and employs 78 miners and 20 day men. Three visits were made. June 26th, investigated a fatal accident caused from a driver falling off the tail chain and being run over by mine cars. Oct. 20th, mine was in excellent condition. Nov. 4th, tested the scales, finding them accurate.

KLONDYKE.

Situated at Klondyke, O., on the B. & O. R. R., and operated by the Loomis Moss Coal Co., Akron, O. Jas. Moss, Cambridge, O., is super-

intendent, and Allen Trehern, Kipling, O., is mine boss. Slope 150 ft. long, penetrating the No. 7 seam of coal, which is from 5 to 6 ft. thick. Fan is the ventilating medium and 81 miners and 29 day men are employed. Two inspections were made during the year. June 26th, recommended the removal of an obstruction along the inlet air course. Oct. 19th, finding the volume of air at the inlet was decreasing, I urged that the obstruction in inlet be removed at the earliest opportunity. The drawing of pillars for the time being is about completed. It is gratifying to record that no serious accident occurred while drawing them.

BLACK TOP.

Located near Lore City, O., and was formerly operated by the Somers Coal Co., Cleveland, O., but is now controlled by the Morris Mining Co., Cleveland, O. Fred Somers, Cambridge, O., is superintendent, and B. H. Beatty, same place, is mine boss. Two visits made to this mine during the year. Shaft 120 ft. in depth to the No. 7 coal, which is 5½ ft. thick; fan ventilation, and employs 182 miners and 59 day men. June 5th, conditions were satisfactory. Sept. 25th, with the exception of one violation of the law with reference to the distance between breakthroughs, the examination resulted satisfactory.

CLEVELAND NO. 1.

Located at Senecaville, O., on the Eastern Ohio Branch of the B. & O. R. R., and was formerly operated by the Somers Coal Co., Cleveland, O., but is now operated by the Morris Mining Co., Cleveland, O. Mark Coe, Senecaville, O., is superintendent, and Robert Farrow, same place, is mine boss. Shaft 198 ft. deep to the No. 7 seam of coal, which is from 5 to 6 ft. thick. Fan ventilation; employing 97 miners and 31 day men. Visited twice. June 8th, the obstruction inlet referred to in the previous report had been cleared the next day as ordered, giving 90 ft. of area to the inlet. The mine was in good condition. Dec. 8th, conditions were commendable. Requested that they continue their vigilance as to the welfare of the mine and left no orders.

LEATHERWOOD NO. 2.

Located near Cambridge, O., on the B. & O. R. R., and operated by the Ohio & Northwestern Coal Co., Cambridge, O. Under re-organization it will be known as the Leatherwood Consolidated Coal Co., after January 1, 1906. Edw. Alexander, Cambridge, O., is superintendent, and Wm. Bernard, of the same place, is mine boss. This mine failed to resume operations as predicted in previous report, but remained suspended until Sept. 1, 1905. On Sept. 10th found the mine in fair condition. Drift opening piercing the No. 7 seam of coal, which is 5½ ft. thick. Fifty miners and 24 day men are employed.

GUERNSEY BRICK.

Situated near Byesville, O., on the Penn. R. R., and operated by the Guernsey Brick & Construction Co., Cambridge, Ohio. Chas. Rabe is superintendent and mine boss. Drift opening to the No. 7 seam, which is from $2\frac{1}{2}$ to 5 ft. thick; furnace ventilation, and employs 12 miners and 1 day man. June 7th, escapement way referred to in previous report was completed and the mine in good condition. July 28th, cautioned the miners to be prompt in timbering, as the top like the coal is faulty. Dec. 1st, requested the mine boss to hire none but practical men to work this seam including shale and bottom, as the work is exceptionally hazardous.

UNION NO. 1.

Located near Birds Run, O., on the Penn. R. R., and operated by the Toledo Coal & Coke Co., Toledo O. E. G. Williams, Birds Run, O., is superintendent, and P. S. Williams, same place, is mine boss. Drift opening penetrating the No. 6 coal, which is now from $2\frac{1}{2}$ to 3 ft. thick. Three visits were made. March 16th, finding a delay in providing an escapement way in compliance with Section 297 of the Mining Laws, I served notice in writing to this Company requiring the escapement as provided on or before April 1st, 1905, or the force reduced to not more than ten men. April 1st, the escapement was completed. July 11th, machine mining had suspended on account of the coal becoming deficient in thickness. Eighteen pick miners and 7 day men were employed. Nov. 29th, operations had suspended indefinitely, all the employees with the exception of Superintendent Williams had found work elsewhere.

LITTLE KATE.

Situated near Byesville, O., on the Penn. R. R., and operated by the National Coal Co., Akron, Ohio. G. L. Walkinshaw, Byesville, O., is superintendent, and Chas. Haskins, same place, is mine boss. Shaft opening 92 ft. deep to the No. 7 seam of coal, which is from 5 to 6 ft. thick. Fan ventilation and employs 71 miners and 40 day men. Three visits were made during the year. January 6th, a cut-a-round the shaft was provided, and they were preparing to work on both sides of the shaft. February 4th, Chief Inspector Geo. Harrison and Assistant Inspector Thos. McGough accompanied me on an official visit to this mine and the general conditions were found satisfactory. June 30th, the mine was in commendable condition, requiring no orders.

INDIAN CAMP.

Located near Birds Run, O., on the Penn. R. R., and owned by the Indian Camp Coal Co., Mt. Gilead, O., and operated by the Atlas Mining Co., lessees, Parkersburgh, W. Va. S. W. Blood, Birds Run, O., is super-

intendent, and J. B. Lawrence, same place, is mine boss. Drift penetrating the No. 6 seam of coal, which is from 3 to 4 ft. thick. Furnace ventilation and employs 26 miners and 6 day men. Two visits were made during the year, March 7th and November 29th, finding the mine in good condition on both occasions.

MORRIS.

Located near Post Boy, O., on the Penn. R. R., and operated by John I. Hursh, Canton, O. G. B. Ray, Post Boy, O., is sole manager. Drift opening to the No. 6 coal, which is 2½ ft. thick. Furnace ventilation; employing 6 miners and 1 day man. August 22nd the mine was in good condition. Operation resumed August 1st, after a suspension beginning May 1st.

WHITE ASH.

Situated near Byesville, O., on the Penn. R. R., and operated by the Puritan Coal Co., Cambridge, O. This is a new slope opening 150 ft. deep, penetrating the No. 7 seam of coal, which is from 5 to 6 ft. thick. W. A. Lucas, Cambridge, O., is superintendent and mine foreman. Four visits made. July 3rd, recorded the mine, and returned the same day to investigate a fatal accident caused by the trestle falling. Oct. 17th, the air shaft was down but entry not connected, ventilation being produced by a brattice in the main opening; a furnace had been erected in this brattice the day previous to the visit, which contained fire. Realizing what the consequence would be should the brattice ignite, I requested the fire removed, and a steam jet used instead until the air shaft could be topped. Nov. 23rd, the connection to the air shaft was made, the natural ventilation being good for the time being. Forty miners and 12 day men are employed. I advised Mr. Lucas to proceed at once to construct the fan and stairway.

L. T. R.

Located near Byesville, O., on the Penn. R. R., and operated by the Byesville Coal Co., Byesville, O. Benj. Morris, Byesville, O., is superintendent and mine boss. Slope, 160 ft. long to the No. 7 seam, which is 5½ ft. thick. A fan is the ventilating medium, and 24 miners and 10 day men are employed. Four visits made. July 3rd, recorded the mine, the slope had pierced the coal and the second opening, which is a shaft, was down 30 ft. Oct. 17th, shaft was found completed and fan in operation, and the mine progressing in compliance with the mining law. Nov. 4th, the new scales required proper adjusting, and the service of an expert scale man was advised, which was secured. Nov. 21st, found the scales accurate and the mine in good condition. I advised that the stairs be erected in the escapement way, which was done prior to the close of the year.

WHITEN.

Is located near the street car line three miles east of Cambridge, O., and is operated by Homer Whiten, Cambridge, O. Drift, penetrating the No. 7 seam of coal, which is 5 ft. thick, natural ventilation and two men are employed. Dec. 4th, found conditions satisfactory for the small force of men employed.

FORSYTHE.

Located near Danford, O., on the B. & O. R. R., and operated by the Forsythe Coal Co., Cambridge, Ohio. Homer Forsythe, superintendent, and Wm. Sheehan, mine foreman, both of Cambridge, Ohio. Slope 110 feet long to the No. 7 seam of coal, which is from $5\frac{1}{2}$ to 6 ft. thick. Fan is the ventilating medium. One hundred and fourteen (114) miners and 51 day men are employed. Inspections were made on May 16th, June 23rd and Oct. 18th, resulting commendable on each examination.

NOBLE COUNTY.

LAURA.

Located at Coalridge, O., on the Penn. R. R., and is operated by the Bell Valley Coal Mining Co., Cambridge, O. T. E. Richards, Caldwell, O., is superintendent, and W. J. Matheny, Coalridge, O., is mine foreman. Shaft opening 185 ft. deep to the No. 7 coal, which is 6 ft. thick. Fan ventilation, and 165 miners and 45 day hands are employed. August 30th, requested the dripping water removed from the stairway. Oct. 4th, accompanied by Chief Mine Inspector Geo. Harrison, we again requested the stairway made dry. Nov. 20th, the condition of the stairs was improved, but not as dry as they should be for comfortable travel. Requested further improvements, and the abandonment of storing powder in the mine. During the year a motor has been installed placing this mine among the most modern of this District.

NOBLE.

Situated near Bell Valley, on the Penn R. R., and operated by the O'Gara Coal Co., Chicago, Ill. Jas. Orr, Byesville, O., is superintendent, and J. A. Collins, Bell Valley O., is mine boss. Shaft 189 feet deep to the No. 7 seam of coal, which is 6 ft. thick. A fan is the ventilating medium, and 159 miners and 90 day men are employed. This mine suspended operation April 6th. On July 27th I was notified that work was expected to resume soon. I made an inspection of this mine and found it

free from standing gas. On July 31st returned and investigated an accident. The mine resumed operation about Sept. 1st. December 15th conditions were satisfactory.

TUSCARAWAS COUNTY.

EAST GOSHEN NO. 1.

Located near Klondyke, on the C. & P. R. R., and operated by the East Goshen Coal Co., Cleveland, O. Wm. Empfield, New Philadelphia, O., is superintendent, and A. K. Stein, Barnhill, O., is mine foreman. Drift opening to the No. 6 seam of coal which is from 4 to 5 ft. thick, furnace ventilation, and employs 115 miners and 35 day men. Three visits were made. August 17th, tested the scales and found them accurate. Oct. 2nd, investigated fatal accident, examined the mine, finding it in fair condition. Dec. 11th, investigated fatal accident and examined the mine and made some suggestions for minor repairs. The general conditions were satisfactory.

EAST GOSHEN NO. 2.

Situated near the No. One mine and operated by the same Company. Wm. Empfield is superintendent, and Jno. Sullivan, Vickers, O., is mine boss. Slope 125 ft. long, penetrating the No. 6 seam, which is about 4 ft. thick. Fan ventilation and employs 60 miners and 26 day men. Operations suspended April 1st, 1905. August 17th, found no prospects of resuming. Dec. 12th, operations had resumed. Fifty miners and 16 day men are employed.

REEVES NO. 1.

Located near New Philadelphia, O., on the C. & P. R. R., and operated by the Reeves Coal Co., Canal Dover, O. Richard Clemens, superintendent, Canal Dover, O., and Owen Donahue, New Philadelphia, O., is mine boss. Drift, penetrating the No. 6 seam, which is from 3 to 4 ft. thick, furnace ventilation, and employs 17 miners and 4 day men. Visited January 11th and August 3rd and found in good condition on both dates. Electricity has been installed in this mine during the year and furnishes the motor haulage.

REEVES NO. 2.

Located near the No. 1 mine and under the same management, with Wm. Cale, New Philadelphia, O., as mine foreman. Drift opening to the No. 6 seam of coal, which is 4 ft. thick, fan ventilation, and employs 65 miners and 24 day men. Two visits were made. January 11th, investi-

gated fatal accident and examined the mine, finding it in excellent condition. August 3rd conditions were satisfactory. Compressed air machines had been installed and working successfully. Motor haulage has been added during the year, ranking this mine in the class of modern mines of the State.

BEAVER DAM NO. 1.

Situated near Klondyke, on the C. & P. R. R., and operated by the Beaver Dam Coal Co., Cleveland, O. O. L. Chalker, New Philadelphia, O., is superintendent, and Bert Frazier, Vickers, O., mine boss. Shaft 75 ft. deep to the No. 6 coal which is about 4 ft. thick, fan ventilation, and employs 142 miners and 35 day men. On January 18th condition of the mine was commendable, the gathering motors are giving perfect satisfaction and are regarded by this Company as a profitable investment.

BEAVER DAM NO. 2.

Located near Midvale, O., on the R. & D. R. R., and operated and managed by the same Company as the No. 1 mine. Frank English, New Philadelphia, O., is mine boss. Shaft 86 ft. deep to the No. 6 coal, which is 4 ft. thick, fan ventilation, employing 62 miners and 22 day men. August 16th the third and fourth west entries were creeping, causing the cars to rub the roof and endangering the motormen. Requested the mine foreman to cease running the motor through the squeeze and avoid opportunity of an accident. This was complied with at once. The ventilation was in excellent condition throughout the mine.

GOSHEN SHAFT.

Located near Klondyke, O., on the C. & P. R. R., and operated by the Goshen Coal & Mining Co., Cleveland, O. D. P. Loomis, New Philadelphia, O., is superintendent, and Peter Ries, same place is mine boss. Shaft 100 ft. deep to the No. 6 seam of coal, which is 4 ft. thick, fan ventilation, and employs 75 miners and 25 day men. August 18th mine was in good condition. An air compressor was under construction with a view of installing punching machines. Dec. 18th the mine was in a commendable condition, the punching machines giving splendid results and the officials expressed a general satisfaction with their investment.

WAINRIGHT NO. 4.

Located at Wainwright, O., and operated by the Midvale Goshen Coal Co., Cleveland, O. Frank McIntosh, New Philadelphia, O., is superintendent and J. N. Horger, Wainwright, O., is mine foreman. Slope 600 ft. in length with slight grade, piercing the No. 6 seam of coal, which is about $4\frac{1}{2}$ ft. thick, furnace ventilation, and employs 110 miners and 21 day men. On May 3rd, finding the furnace had been moved to the

free from standing gas. On July 31st returned and investigated an accident. The mine resumed operation about Sept. 1st. December 15th conditions were satisfactory.

TUSCARAWAS COUNTY.

EAST GOSHEN NO. 1.

Located near Klondyke, on the C. & P. R. R., and operated by the East Goshen Coal Co., Cleveland, O. Wm. Empfield, New Philadelphia, O., is superintendent, and A. K. Stein, Barnhill, O., is mine foreman. Drift opening to the No. 6 seam of coal which is from 4 to 5 ft. thick, furnace ventilation, and employs 115 miners and 35 day men. Three visits were made. August 17th, tested the scales and found them accurate. Oct. 2nd, investigated fatal accident, examined the mine, finding it in fair condition. Dec. 11th, investigated fatal accident and examined the mine and made some suggestions for minor repairs. The general conditions were satisfactory.

EAST GOSHEN NO. 2.

Situated near the No. One mine and operated by the same Company. Wm. Empfield is superintendent, and Jno. Sullivan, Vickers, O., is mine boss. Slope 125 ft. long, penetrating the No. 6 seam, which is about 4 ft. thick. Fan ventilation and employs 60 miners and 26 day men. Operations suspended April 1st, 1905. August 17th, found no prospects of resuming. Dec. 12th, operations had resumed. Fifty miners and 16 day men are employed.

REEVES NO. 1.

Located near New Philadelphia, O., on the C. & P. R. R., and operated by the Reeves Coal Co., Canal Dover, O. Richard Clemens, superintendent, Canal Dover, O., and Owen Donahue, New Philadelphia, O., is mine boss. Drift, penetrating the No. 6 seam, which is from 3 to 4 ft. thick, furnace ventilation, and employs 17 miners and 4 day men. Visited January 11th and August 3rd and found in good condition on both dates. Electricity has been installed in this mine during the year and furnishes the motor haulage.

REEVES NO. 2.

Located near the No. 1 mine and under the same management, with Wm. Cale, New Philadelphia, O., as mine foreman. Drift opening to the No. 6 seam of coal, which is 4 ft. thick, fan ventilation, and employs 65 miners and 24 day men. Two visits were made. January 11th, investi-

gated fatal accident and examined the mine, finding it in excellent condition. August 3rd conditions were satisfactory. Compressed air machines had been installed and working successfully. Motor haulage has been added during the year, ranking this mine in the class of modern mines of the State.

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Situated near Klondyke, on the C. & P. R. R., and operated by the Beaver Dam Coal Co., Cleveland, O. O. L. Chalker, New Philadelphia, O., is superintendent, and Bert Frazier, Vickers, O., mine boss. Shaft 75 ft. deep to the No. 6 coal which is about 4 ft. thick, fan ventilation, and employs 142 miners and 35 day men. On January 18th condition of the mine was commendable, the gathering motors are giving perfect satisfaction and are regarded by this Company as a profitable investment.

BEAVER DAM NO. 2.

Located near Midvale, O., on the R. & D. R. R., and operated and managed by the same Company as the No. 1 mine. Frank English, New Philadelphia, O., is mine boss. Shaft 86 ft. deep to the No. 6 coal, which is 4 ft. thick, fan ventilation, employing 62 miners and 22 day men. August 16th the third and fourth west entries were creeping, causing the cars to rub the roof and endangering the motormen. Requested the mine foreman to cease running the motor through the squeeze and avoid opportunity of an accident. This was complied with at once. The ventilation was in excellent condition throughout the mine.

GOSHEN SHAFT.

Located near Klondyke, O., on the C. & P. R. R., and operated by the Goshen Coal & Mining Co., Cleveland, O. D. P. Loomis, New Philadelphia, O., is superintendent, and Peter Ries, same place is mine boss. Shaft 100 ft. deep to the No. 6 seam of coal, which is 4 ft. thick, fan ventilation, and employs 75 miners and 25 day men. August 18th mine was in good condition. An air compressor was under construction with a view of installing punching machines. Dec. 18th the mine was in a commendable condition, the punching machines giving splendid results and the officials expressed a general satisfaction with their investment.

WAINRIGHT NO. 4.

Located at Wainwright, O., and operated by the Midvale Goshen Coal Co., Cleveland, O. Frank McIntosh, New Philadelphia, O., is superintendent and J. N. Horger, Wainwright, O., is mine foreman. Slope 600 ft. in length with slight grade, piercing the No. 6 seam of coal, which is about $4\frac{1}{2}$ ft. thick, furnace ventilation, and employs 110 miners and 21 day men. On May 3rd, finding the furnace had been moved to the

escapement shaft near the face of the works, requested that stairs be erected in the old furnace shaft to be used as an escape, and some timbering done along the main entry. With these improvements completed conditions would meet with my approval.

WAINWRIGHT NO. 6.

Located near Wainwright, O., on the B. & O. R. R., and is under the same management as the No. 4 mine. Jas. Hardwidge, Wainwright, O., is mine boss. Slope 307 ft. long to the No. 6 coal, which is $4\frac{1}{2}$ ft. thick, fan ventilation, and employs 22 miners and 7 day men. May 3rd, owing to dull trade, the development of the mine was progressing slowly, but found to be in good condition.

GOSHEN HILL.

Located near Klondyke, O., on the C. & P. R. R., and operated by the Goshen Hill Coal Co., Cleveland, O. Frank McIntosh, New Philadelphia, O., is superintendent, and Geo. McIntosh, same place, is mine foreman. Drift to the No. 6 coal, which is $4\frac{1}{2}$ ft. thick, furnace ventilation, and employs 60 miners and 15 day men. March 31st, requested an escapement way be opened near the head of the works; the present openings are only 40 ft. apart and did not meet the requirements of the law.

MIDVALE NO. 3.

Situated near Barnhill, O., on the B. & O. R. R., and was formerly operated by the Midvale Coal Co., Cleveland, O. Visited May 19th and found that operations were suspended since February 1, 1905, and was then remaining idle. It resumed operation about November 1st under the management of H. E. Cole, Midvale, O., who leased the mine about said date.

ROYAL COAL NO. 2.

Located near Midvale, O., on the B. & O. R. R., and operated by H. E. Cole, Midvale, O. Chris Fox, same place, is mine superintendent, and Wm. Fairless, same place, is mine boss. Furnace ventilation and employs nine men. June 15th the creep had renewed so that it cut off the principal coal field. Ventilation was satisfactory. Drift opening to the No. 6 coal, which is 4 ft. thick.

ROYAL COAL NO. 3.

Situated near Midvale, O., on the B. & O. R. R., and operated by H. E. Cole, Midvale, O. Chris Fox, same place is mine superintendent, and T. J. Watson, same address, is mine foreman. Drift, penetrating the No. 6 coal, which is 4 ft. thick. Furnace ventilation and employs 22 miners and 7 day men. May 18th, found the mine in good condition.

ROYAL COAL NO. 1.

Located near Midvale, O., the coal being consumed by the pottery. J. S. Scott is lessee and manager. Drift opening to the No. 6 coal, which is 4 ft. thick, furnace ventilation, and employs 5 miners working on the co-operative plan drawing the remaining pillars. A creep between the men and daylight was visible. The miners were cautioned to retreat in due time as the weight increased by the removing of the pillars.

ROYAL CLAY NO. 2.

Situated near Midvale, O., the production being manufactured at the same place. Formerly operated by the Sewer Pipe & Fire Brick Co., Uhrichsville, O., but is now operated by the Robinson Clay Product Co., Akron, O. Lewis Just, Uhrichsville, O., is superintendent and mine boss. June 15th, found this mine flooded by drawing the water from the Royal Coal mine and it was suspended indefinitely.

DIAMOND COAL.

Located near Uhrichsville, O., the coal being used to fuel the pottery. It is operated by the American Clay Mnfg. Co., Akron, O. It is a drift opening to the No. 6 seam, which is 4 ft. thick. Geo. Ross is superintendent and mine boss. Seven men are employed and one day man. August 15th, found the mine in an acceptable condition for a small force of men employed. Furnace ventilation is in use.

HUFF RUN NO. 1.

Situated near Mineral City, O., on the C. T. & V. R. R., a branch of the B. & O., and operated by the Ridgeway Burton Coal Co., Cleveland, O. Alex. Lindsey, Mineral City, superintendent and mine boss. Drift mine, piercing the No. 6 seam of coal, which is from $3\frac{1}{2}$ to 4 ft. thick. Fan ventilation, and employs 30 miners and 20 day men. On July 7th I observed that the air, while sufficient in quantity, had gathered carbonic acid gas in the long travel through old works before reaching the miners, disqualifying it for healthy respiration, and the return airway to the poorly constructed fan being flooded with water beyond travel. I could see no way to increase the air sufficient to render this gas harmless other than to advise the sinking of an air shaft at the face of the 15th west entry, and move the fan or a larger one preferred, either to the new shaft on or near the mine entrance, and reverse the air, admitting it first to the miner and gathering the gases on the return air. Requested the Company to proceed at once and make the improvements as above suggested, and to remove the water from the escapement way.

ANNUAL REPORT

GOSHEN.

Located near Beidler, O., on the B. & O. R. R., and operated by the Goshen Coal Co., Cleveland, O. Wm. Empfield, New Philadelphia, O., is superintendent, and Jno. Turnbull, Beidler, O., is mine boss. Drift to the No. 6 seam of coal which is $4\frac{1}{2}$ ft. thick, furnace ventilation, and employs 100 miners and 26 day men. On May 4th found the ventilation lawful. Requested the passway on the 3rd west entry be substantially timbered.

GOSHEN CENTRAL.

Situated three miles east of New Philadelphia, O., on the C. & P. R. R., and operated by the Goshen Central Coal Co., Massillon, O. W. K. Moore, New Philadelphia, O., is superintendent and mine boss. Drift opening to the No. 6 coal, which is from $3\frac{1}{2}$ to 5 ft. thick. Furnace ventilation and employs 20 miners and 8 day men. Aug. 3rd Mr. Moore had not met his expectations by passing through the thin coal into coal about 5 ft. thick. The mine was in excellent condition. Requested him to proceed at his earliest opportunity to secure an escapement way. A rope haulage was installed during the year, and indications now are that this Company will receive profitable returns for the lengthy struggle they have had in the coal being so deficient in height.

WEST GOSHEN.

Located at Joyce, O., on the Penn. R. R., and operated by the Cleveland & Tuscarawas Coal Co., Cleveland, O. R. M. Mason, Coshocton, O., is superintendent, and Emery Ankney Joyce, O., is mine boss. Drift penetrating the No. 6 seam, which varies in thickness from $3\frac{1}{2}$ to 5 ft. Ninety-two miners and 28 day men are employed. Four visits were made. March 23rd, requested that the proposed electric fan be secured prior to the warm sultry weather. August 1st found no fan provided, and the air deficient. I suggested removing the iron basket from the new hill air shaft and make the down cast for the old hill furnace, reversing the air as a means of temporary relief until the fan could be secured and placed in operation. Returned August 4th, the changes which had been previously suggested, had been made and conditions improved. November 4th, the fan in operation and the ventilation excellent.

EGYPT.

Situated six miles northeast of New Philadelphia, on the C. & P. R. R., and operated by the J. Mullins Coal Co., Cleveland, O. Wm. Long, New Philadelphia, O., is superintendent, and Jno. Featherstone, New Philadelphia, O. is mine boss. Drift to the No. 6 coal, 4 ft. thick, with fan ventilation, and employs 47 miners and 23 day men. August 2nd the mine was found in good condition, and the punching machines have proved successful.

CENTRAL VALLEY NO. 1.

Located near New Cumberland, O., on the W. & L. E. R. R., and operated by the Massillon & Tuscarawas Coal Co., Massillon, O. C. C. Smith, Somerdale, O., is superintendent and mine boss. Drift to the No. 6 coal, which is from 3 to 4 ft. thick, furnace ventilation, and employs 14 miners and 5 day men. August 23rd this mine was nearing exhaustion. After the fan was removed from this to the No. 2 mine a furnace was erected in the escapement shaft of this mine, rendering it unavailable. Requested Mr. Smith not to employ any more than ten men at any one time during the brief period required to finish the coal field.

CENTRAL VALLEY NO. 2.

Situated one mile from the No. 1 on the W. & L. E. R. R. and operated and managed by the same firm and officials as the No. 1. Drift to the No. 6 seam, which is from $3\frac{1}{2}$ to 4 ft. thick, fan ventilation, and employs 27 miners and 10 day men. August 23rd the stairway was provided in the escapement shaft and the mine found in compliance with the law. Suggested that some doors be hung on the main airway, where canvas was in use as a matter of economy and reliability.

SOMERDALE NO. 1.

Located at Somerdale, O., on the W. & L. E. R. R., and operated by the Somerdale Coal Co., Cleveland, O. D. R. Morris is superintendent and mine boss, residing at Somerdale, O. Drift to the No. 6 seam, $3\frac{1}{2}$ to 4 ft. thick, and has furnace ventilation. Thirty-seven miners and 13 day men are employed. July 5th, found the mine in good condition, but the old escapement shaft could not be regarded as safe and available. Requested Mr. Morris to make a new opening at the head of the first west entry to be completed by Oct. 15th, one year after first shipment began with the new development.

SOMERDALE NO. 2.

Situated near the No. 1 mine and owned and operated by the same Company. Drift to the No. 6 seam, $3\frac{1}{2}$ to 4 ft. thick. No effort has been made towards rebuilding the tipple consumed by fire from a stroke of lightning July 25th, 1904. The Company anticipates removing the entire coal field through the No. 1 mine and avoid rebuilding equipments here. It is very probable that this mine can be regarded as abandoned.

HOUK.

Located at Stillwater, O., on the B. & O. R. R., and operated by the American Sheet Steel Co., Canal Dover, O. J. L. Houk, Stillwater, O., is

superintendent, and Dan'l O'Conner same place, is mine boss. I am recently informed that he has resigned this position. Drift to the No. 7 seam of coal, which is 5 ft. thick, fan ventilation, and employs 63 miners and 21 day men. On May 5th a threatening creep was visible on the 3rd and 4th entries. One violation of the breakthrough regulations was discovered. Otherwise the condition of the mine was approved.

MASSILLON PEACOCK.

Situated near Mineral City, O., on the B. & O. R. R., and operated by E. Van Kirk Coal & Mining Co., Mineral City, O. Drift opening to the No. 5 coal, which is from 3 to $3\frac{1}{2}$ ft. thick. Furnace ventilation and 46 miners and 20 day men employed. May 31st the mine was found in good condition. John Puncheon, Mineral City, O., is superintendent and mine boss, and takes pride in taking proper care of his men.

NOVELTY.

Located near Newcomerstown, O., on the Penn. R. R., and operated by the Novelty Brick & Coal Co., Newcomerstown, Ohio. R. L. Shumaker, Newcomerstown, O., is superintendent, and Geo. Adams, same place, is mine boss. Drift to the No. 6 coal, which is $3\frac{1}{2}$ ft. thick and has fan ventilation. Twenty-two miners and 8 day men are employed. May 2nd a Charleston high speed fan was in operation, propelled by compressed air, and conditions were satisfactory. The punching machines were operating successfully.

INDIAN HILL.

Drift to the No. 6 seam of coal, which is 4 ft. thick, located near Uhrichsville, O., and operated by the Hiawatha Coal Co., Toledo, O. Jno. Renold, Uhrichsville, O., is superintendent and mine foreman. Fan ventilation is in use and 75 miners and 21 day men are employed. Three visits were made. On March 7th the mine was in excellent condition, and air shaft had been opened near the head of the works admitting air to the miners strictly pure. July 14th, found that the trestle and part of the tipple had been consumed by fire of an unknown origin, and operations had ceased until the road from mine to tipple could be laid on the ground, and a hoisting shaft arranged with automatic dumps to hoist the coal to enable screening. Aug. 15th the repairs were nearing completion and operations were to resume in a few days.

BUCKHORN.

Located two miles north of Newcomerstown, O., on the Penn. R. R., operated by Geo. Markley, Mineral City, O. E. C. Kuhn, Wolf, O., is superintendent and mine foreman. Boiler furnace ventilation is in use.

Drift to the No. 6 seam of coal which is from $2\frac{1}{2}$ to 3 ft. thick. Twenty miners and 6 day men are employed. On May 2nd mine was suspended on account of dull trade.

ACME NO. 1.

Situated near Mineral City, O., and operated by Geo. Markley, Mineral City, O. Railroad transportation, C. T. & V. branch of the B. & O. R. R. Drift opening to the No. 6 coal, which is about 4 ft. thick. Daniel Harrison, Mineral City, O., is superintendent and mine boss. July 6th, found suspended and remained so until the end of the year.

ACME NO. 2.

Located near the No. 1 mine and coal handled over the same tippie and operated by the same party under the same supervision. Drift opening into the clay under the No. 5 seam of coal. Recently it drifted up finding the coal 3 ft. 4 in. thick and of a superior quality. Fifteen miners and 4 day men are employed mining coal. Clay mining has suspended for the present.

ACME NO. 3.

Located near Mineral City, O., the coal and clay being used at the American Federal Clay Product Co.'s plant, Mineral City, O. Daniel Harrison, Mineral City, O., is superintendent and mine boss. Drift piercing the clay under the No. 5 seam of coal drifting to the coal in the interior of the mine, both products being delivered from the same drift. Nine miners and 6 men are employed in the coal and clay respectively. Furnace is the ventilating medium and conditions acceptable for the present force employed.

LAUGHLIN

Situated at Crescent, O., on the C. & P. R. R., and owned by the Mineral City Coal Co., Mineral City, O. Drift to the No. 6 seam of coal, which is 4 ft. thick, with furnace ventilation, and on July 8th was found suspended pending a litigation. Dec. 14th was still idle and continued so the remainder of the year.

SUGAR CREEK.

Located at Sugar Creek, O., on the W. & L. E. R. R., and operated by the Drake Coal Co., Cleveland, O. R. M. Mason, Coshocton, O., is superintendent, and Wallie Phillips, Sugar Creek, O., is mine foreman. Slope opening piercing the No. 6 seam of coal, which is $3\frac{1}{2}$ ft. thick, ventilated by a furnace, and employs 25 miners and 9 day men. Aug. 24th, found the mine had suspended operations about June 1st on account of dull trade. Jacob Lawrence, mine boss, had resigned his position. Being notified that operations would resume Nov. 1st, made a complete examination of the mine with Mr. Phillips, mine boss, who had just taken

charge. On Oct. 31st found the mine in fair condition after prolonged idleness. Some suggestions were given concerning loose stone and repairing stoppings.

CARBON HILL.

Located at Newport, O., on the B. & O. R. R., and operated by the Carbon Hill Coal Co., Toledo, O. J. M. Shanks, Uhrichsville, O., is superintendent and mine boss. Drift to the No. 6 seam of coal, which is $3\frac{1}{2}$ feet thick. Furnace ventilation is used. Aug. 15th, found this mine had suspended operations July 22nd, 1904, and resumed June 1st, 1905, and suspended again July 18th on account of inability to produce coal profitably and no information could be secured concerning future intentions.

TWIN CITY.

Situated near Dennison, O., on the Penn. R. R., and operated by the Dennison Coal Co., Dennison, O. H. Hirst, superintendent, and Jos. Hirst, mine boss, both of Midvale, Ohio. Drift to the No. 6 coal, 4 ft. thick and furnace ventilation. Twenty-five miners and 14 day men employed. Aug. 14th, the ventilation was found in compliance with the law. A new escapement shaft was being sunk near the face of the workings which will be used as the downcast furnishing pure air to the miners, and a convenient and available escapement way.

BALTIC.

Located near Baltic, Ohio, on the W. & L. R. R., and operated by C. A. Townsend Coal Co., Cleveland, O. C. F. Fair is superintendent and mine boss, Baltic, Ohio. Drift to the No. 5 seam, which is from $2\frac{1}{2}$ to 3 ft. thick, furnace ventilation, and employs 9 miners and 1 day man. Aug. 24th the mine was in good condition; the coal being deficient in thickness makes it very uncertain as to retaining miners.

MOREY RIDGE.

Located near Beidler, O., on the B. & O. R. R., and operated by C. J. Nungesser, Beidler, O., who is manager. Drift to the No. 6 coal, which is 4 ft. thick. Furnace ventilation, employing 11 miners and 6 day men. May 14th, conditions were satisfactory for the small force employed.

MINES VISITED IN THE SIXTH MINING DISTRICT OF OHIO.

JEFFERSON COUNTY.

X L.

Located near Bergholz, O., and operated by the X L Coal Co., Bergholz, O. Jno. G. Kirk, superintendent, Bergholz, O., and Albert Thorpe, of the same place is mine boss. Dec. 22nd, found violations of the break-through and child labor law and no stairway in the escapement shaft. A poorly devised fan was furnishing sufficient ventilation for the force employed. Necessary orders were given, and advised that advance holes be made when approaching an adjacent abandoned mine containing water. Forty miners and 12 day men are employed. Transportation on the L. E. A. & W. R. R. This is a drift opening to the No. 6 seam of coal.

WEST PITTSBURGH.

Located near Bergholz, O., on the L. E. A. & W. R. R., and operated by the Eastern Ohio Coal Co., Cleveland, Ohio. Mott Spiker, Bergholz, O., is superintendent, and H. Williams, of the same place is mine boss. Slope opening to the No. 5 coal. A fan is the ventilating medium. One hundred and fifty-nine miners and 36 day hands find employment here. Dec. 21st the child labor law was being violated. A recent cave-in in the bottom lands demonstrated danger when waters were high overflowing said bottoms. Requested that the minor children be removed from the mine, and the men debarred from entering same when the bottoms were overflowed with water from the creek.

AMSTERDAM.

Situated near Amsterdam, O., on the L. E. A. & W. R. R., and operated by the Y. & O. Coal Co., Cleveland, O. David Williams, superintendent, Amsterdam, O., and E. B. Lee, of the same place, is mine boss. Shaft opening 271 ft. deep to the No. 5 seam of coal, and has fan ventilation. Seventy-seven miners and 38 day men are employed. On Dec. 19th found that a fire had been sealed up in the 3rd and 4th east entries, which occurred on November 3rd, at which time no pipes had been placed in the walls which are made of brick and cement, which would have permitted an investigation of the inside conditions. Believing that the fire was extinguished, and realizing that the enclosure was dangerous in case other fires should occur, advised that the walls be opened at an early date and the gas removed from the mine.

ZERBE.

Located near Amsterdam, O., on the L. E. A. & W. R. R., and operated by the O. & P. Coal Co., Cleveland, O. G. W. Wagoner, Amsterdam, O., is superintendent, and H. J. McAbier, mine foreman, residing at the same place. Shaft 180 ft. deep, penetrating the No. 5 seam of coal, and two fans furnish the ventilation. One hundred and eighteen miners and 50 day men are employed. On Dec. 20th ventilation conditions were satisfactory. Advised that the air course be enlarged, near the shaft, as a relief for the fans, and some workings near room 19 on the 2nd east entry, which had recently caved in and were emitting a large flow of water in the mine, stopped until they could determine the source from which the water came, and urged the miners to keep their posts set within machine length from the face continually.

JUMBO.

Situated near Bergholz, O., on the L. E. A. & W. R. R., and owned by the E. Deal Coal Co., Erie, Pa. Albert Thorpe, Bergholz, O., is superintendent and mine boss. Drift penetrating the No. 6 seam of coal. This mine has been suspended during this year, but is preparing to resume operations about January 1, 1906. Visited Dec. 22nd, 1905.

CARROLL COUNTY.


MAGNOLIA.

Located near Magnolia, O., on the C. & P. R. R., and operated by the Magnolia Coal Co., Akron, O. J. J. Dagenhard, Magnolia, is superintendent, and E. G. Branfield, same place, is mine boss. Shaft opening to the No. 5 coal, which is 3 ft. 8 in. thick. Fan is the ventilating medium, and 61 miners and 36 day men are employed. Dec. 14th ventilation was in fair condition, but the drainage was poor, causing wet and muddy roads throughout the mine, proving detrimental to a profitable output and the comfort of the employees. Suggested that an electric pump be set in the swale and discharge the water through a drill hole to the surface.

MUSKINGUM COUNTY.

WERNER.

Located at Zanesville, O., and operated by W. A. Werner, supplying city trade with team transportation. Fred C. Werner, Zanesville, O.,



is superintendent and mine boss. Drift opening, the coal being 30 in. in thickness, with furnace ventilation. Twenty-six miners and 1 day man employed. The coal is hauled to the surface with dog teams. On February 13th the ventilation was satisfactory. Requested a door **provided** between this and the Combs mine as a ready and available escape for both miners.

BLUE ROCK.

Situated at Stone Station, on the O. & L. K. Branch of the B. & O. R. R., and operated by the Blue Rock Coal Co., Gaysport, O. J. Souders, superintendent, Gaysport, O., who also acts as mine boss. Drift opening piercing the No. 7 seam of coal, which is 4 ft. thick, furnace ventilation, and 17 miners and 7 day men employed. On February 14th an examination proved that this mine had run about thirty years without an escapement way being provided for the men, as directed by law, the entrance to the mine being timbered and lagged the greater part of the way, and a pine partition 100 ft. long forming the inlet and return at one point where persons were compelled to pass in case of fire. Orders were given to this Company to place a non-combustible wall where the board partition stood, and an escapement way opened near the furnace. Mr. Souders, the superintendent, informed me that he would not comply, and appealed to the Chief of the Department. I realized his privilege and awaited the results of the appeal. On February 27th I gave notice to this Company in writing to provide the required improvements on or before April 1st, 1905, or to reduce the force not to exceed ten men at any one time in the mine. March 9th, George Harrison, Chief Inspector, at the request of the Company, made an examination of the mine. I accompanied him and, after carefully investigating conditions, Mr. Harrison sustained my orders. At the request of the Blue Rock Coal Co., I returned on March 25th and explained the requirements of the law regarding their mine. On April 3rd, finding that no effort was being made to execute the orders, I posted a notice reducing the force to ten men. The Company realizing that they could not operate the mine successfully with a reduced force, requested me to return and advise concerning the improvements. On April 20th I maintained my first orders, the Company agreeing to proceed at once to make the improvements, which they fulfilled, and Jas. Pritchard, District Mine Inspector for that locality, later on removed the notice from the pit mouth, when the improvements were completed.

ABLES.

Located near Buckeye Station, on the C., S. & H. R. R., and operated by the Muskingum Coal & R. R. Co., Zanesville, O. L. D. Ables is superintendent, Zanesville, O., and Nelson Spencer, of the same place, is mine boss. Drift to the No. 6 seam, 3½ ft. thick at this point, with fan ventilation, and employs 34 miners and 7 day men. Three visits were made.

February 16th, the mine being properly opened for room work, conditions were satisfactory. February 27th, the breakthrough law was being violated, and all places were stopped until the breakthroughs could be made. March 9th, Hon. Geo. Harrison, Chief Inspector of Mines, accompanied me to this mine and made an examination, finding the mine in good condition. This visit was well accepted and the advice given by the Chief on mining appreciated by the managers.

GRANGER.

Situated near Buckeye Station, on the O. & L. K. branch of the B. & O. R. R., and operated by the Siler Coal Co., McConnellsville, O. C. F. Siler, of that place, is superintendent, and C. L. Siler mine boss. Drift to the No. 6 seam of coal, which is about 4 ft. thick. Furnace is the ventilating medium, and 18 miners and 2 day hands are employed. Three visits were made. February 16th, requested the removal of two barrels of gasoline from the mine, permitting only five gallons taken in the mine each day in an air tight can. March 8th, Chief Inspector Geo. Harrison accompanied me to this mine, at which time we found the gasoline still stored in the mine, but it was removed at the request of the Chief Inspector. April 20th, returned and tested the scales, finding a loss of one hundred and twenty-five pounds to the miner on the scales weighing the coal going to the boats on the river. We made an investigation by opening the poise and found it loaded with lead, which was removed, and the scales proved correct. The superintendent being present acknowledged that the poise was loaded, but claimed he knew nothing about how it had been done or who had done it.

OAK KNOB.

Located near Buckeye Station, on the O. & L. K. Ry., and operated by M. J. Sculley, Detroit, Mich. W. H. Blaney, superintendent, Dillon, O. Lawrence McNeal is mine foreman, Duncans Fall, O. Drift to the No. 6 coal, which is 3 ft. thick. Furnace ventilation is employed. Seventeen miners and two day men are employed. February 17th, found the escapement way closed by a cave. The mine was suspended awaiting orders for coal. Ordered the escapement repaired while the mine was idle. On February 27th gave the owner a written notice to provide a lawful escapement way by April 1st or reduce the working force to ten men. March 9th, accompanied by Chief Inspector Geo. Harrison, we found the mine had not resumed operation, nor any effort yet made towards repairing the escapement way. We again assured them that the ten men limit would be strictly enforced when the mine resumed operation unless the escapement way was provided. On April 4th the improvement was made, but the mine still remained idle.

DEWEY NO. 2.

Situated near Sealover Station, on O. & L. K. Branch of the B. & O. R. R., and operated by J. C. Reid, Janesville, O. Drift opening to the No. 7 coal, which is 6 ft. thick. The owner is the superintendent. Fred Berkemer, Philo, Ohio, is mine foreman. Ventilation is produced with an iron basket. Eighteen miners and 3 day hands employed. On February 19th found the condition of the ventilation adequate, but the mine was without an escapement way. On February 27th gave a written notice to this Company demanding an escapement way by April 1st. March 9th this mine was visited by Chief Mine Inspector Geo. Harrison and myself, and found the entry being pushed to secure the desired opening. On April 4th found the opening completed and the mine in good condition.

CADILAC.

Located near Sealover, on the O. & L. K. Div. of the B. & O. R. R., and operated by the Duncan Run Coal Mining Co., Detroit, Mich. W. H. Blaney is superintendent, Dillon, O., and R. Robinson mine boss, Philo, O. Drift opening to the No. 7 coal and an iron basket is the ventilation medium. Twenty-eight miners and 4 day hands employed. On February 17th conditions were acceptable excepting the impaired pit entrance and the lack of an escapement way. Requested the pit entrance timbered, and an escapement way provided. On February 27th gave a written notice demanding these improvements or the force reduced after April 1st. March 9th, Chief Inspector Geo. Harrison accompanied me to this mine and informed the management that the law would be strictly enforced after April 1st if the demands were not complied with. On my return April 4th, the escapement shaft was completed, and stairway provided, and the mine entrance timbered and general conditions good.

PAN AMERICAN NO. II.

Situated near Cannellville, O., on the Z. & W. R. R., and operated by the Salzburg Coal Co., West Bay City, Mich. J. C. Davis, Dillon, O., superintendent, and E. A. Bratton, of the same place, is mine boss. Drift opening, No. 6 seam of coal, which is 5 ft. thick, furnace ventilation, and 14 miners and 4 day men employed. On February 23rd found no escapement way had been provided. Requested this improvement made, and followed with a written demand for same on February 27th to be provided on or before April 1st or the force reduced to ten men. On April 5th the mine was idle. Davis and Bratton had surrendered their lease, and no effort had been made to comply with the order. I posted notice in the pit mouth limiting the force employed to ten men at any one time in the mine. April 28th the mine was still suspended, and no improvements made. I left this matter in the hands of Jas. Pritchard, who had recently been

appointed District Mine Inspector in that District, and accompanied me on this visit.

HAY MARKET NO. 37.

Located near Cannellville, O., on the C., S. & H. R. R., and operated by Fobes & Tompkins, Columbus, O. J. J. Murphy, superintendent, Dillon, O., and Jno. Leach of the same place, mine boss. Drift mine penetrating the No. 6 seam of coal, furnace ventilation, employing 34 miners and 10 day men. On February 21st this mine was found in good condition. Requested the map extended which was then delinquent. On April 28th, accompanied by Mr. Jas. Pritchard, District Inspector for that locality, we found the map extended to date and conditions satisfactory.

MINE NO. 16.

Situated near Cannellville, Ohio, on the Z. & W. R. R., and operated by Maynard Brothers, Columbus, Ohio. B. Mauk, Dillonvale, O., is superintendent and mine boss. Drift opening to the No. 7 coal. Furnace is the ventilating medium. Thirty miners and 9 day men are employed. On February 21st operations were suspended. Examined the mine and discovered that it was not provided with an escapement way. Gave orders and followed with a written demand for this improvement on or before April 1st or the force limited to ten men. April 5th, finding no effort made to comply, I posted notice regulating the force to be employed. April 28th, accompanied by Mr. Pritchard, District Mine Inspector, we found the mine still suspended, and no improvements made. This matters was left in the hands of Mr. Pritchard for execution when operations began.

WALNUT HILL NO. 1.

Located at Cannellville, O., and is abandoned.

WALNUT HILL NO. 2.

Located at Cannellville, O., on the Z. & W. R. R., and operated by the Walnut Hill Coal Co., Detroit, Mich. W. H. Blaney, Dillon, O., is superintendent, and E. Kinchloe, of the same place, is mine boss. Drift opening, No. 6 seam of coal and furnace ventilation, employing 28 miners and 5 day men. On February 22nd requested that a connection with the Haymarket mine be cleaned out and a door hung to provide available escapement way. April 5th, improvements were completed and the mine in good condition.

WALNUT HILL NO. 3.

Situated near the No. 2 mine, the coal being dumped over the same tipple, and operated and managed by the same persons. On February 22nd preparations were being made to install a motor and electric machines, the main entry being unusually narrow. Requested manholes every

60 ft. and an escapement provided. On February 27th gave a written notice to this effect to be accomplished by April 1st. On April 5th finding no attention given to my request, posted a notice reducing the force to ten men. On April 28th found the escapement shaft sunk, stairs and manholes provided and conditions in compliance with the mining laws.

MINE NO. 38.

Situated at Cannellsville, O., and is owned and operated by Maynard Bros., Columbus, O. B. Mauk, Dillon, O., is superintendent and mine boss. Drift to the No. 6 coal and has furnace ventilation. Transportation on the C., S. & H. Ry. Thirty-five miners and eight day men employed, but owing to the dull trade the mine suspended and only a pumper was employed. On February 24th a fire was made in the furnace and the mine examined, and found in good condition. April 28th, Jas. Pritchard and myself found the mine still idle.

THOMAS.

Located at Zanesville, O., and operated by Wm. Thomas, Zanesville, O., who is sole manager. Three men are employed, the product being consumed by city trade. March 27th, visited this mine to secure the annual statistics. The condition of the mine was acceptable considering the small force of men employed.

PERRY COUNTY.

NEW CRESCENT NO. 1.

Situated near Roseville, O., on the C. & M. V. R. R., and operated by the Kennon Coal & Mining Co., Cleveland. Geo. Robson, superintendent, Roseville, O., who is also mine boss. Drift, No. 6 seam, which is 4 ft. thick, an iron basket providing the ventilation. Nine miners and 3 day men employed. The front hill is exhausted. A pair of entries are going to enter a new field of coal.

NEW CRESCENT NO. 2.

Located near the No. 1 mine, and managed by the same company. A furnace is used to ventilate the mine. Thirty-eight miners and 19 day men employed. On February 20th found the recent escapement way ordered by Mr. Harrison, Chief Inspector of Mines, had been provided in an unskilled manner. I suggested that it be properly timbered to secure safety, and a manhole made between the pit entrance and furnace entry.

REND NO. 1.

Situated near Crooksville, O., on the C. & M. V. R. R., and operated by the Standard Hocking Coal Co., Chicago, Ill. J. W. Jones, superintendent and mine foreman, Crooksville, O. Fan is the ventilating medium. Twenty-nine miners and 12 day men employed. On February 24th, finding the mine without an escapement way, requested one provided and written notice to that effect was given February 27th, requiring said improvement on or before April 1st, or a reduction made in the number of men employed, as specified by law. April 6th, no effort had been made to comply with my request, notice was posted reducing the force and the miners were all sent home by Mr. Jones, and work on the opening began. April 27th, in company with Mr. Pritchard, we found the escapement way completed and removed the notice of restriction.

REND NO. 2.

Located near the No. 1 mine and operated and managed by the same company. Drift, No. 6 seam of coal, furnace ventilation and employs 14 miners and 6 day men. The opening being at the head of a ravine and a slaughter house only 72 yds. below, with a number of hogs devouring offals in the slaughter pen, the stench entering the inlet of air made it unbearable to myself while visiting this mine, and the effect on those continually working in the mine could well be imagined. Not knowing who had legal possession, I ordered either the mine or slaughter house abandoned, and an escapement way made. April 6th, found the slaughter house abandoned, and an escapement way being sunk, and the force in the mine reduced to ten men. April 27th, accompanying Mr. Pritchard, we found the escapement shaft nearing completion and the stairs made ready to be placed.

UNION.

Situated near Cooksville, O., on the C. & M. V. R. R., and operated by the Saltillo Coal Co., Columbus, O. T. H. Carter, superintendent and mine boss, Crooksville, O. Drift, No. 6 seam of coal and furnace ventilation. Thirty-one miners and 8 day men employed. On February 24th this mine was found in good condition.

KEYSTONE NO. 1.

Located near Crooksville, O., on the C. & M. V. R. R., and operated by the Zanesville Coal Co., Zanesville, O. Thos. Opie is superintendent and mine boss, Crooksville, O. Fan ventilation, drift opening to the No. 6 seam of coal, which is a 4 ft. thick. Eighty-seven miners and 28 day men are employed. On February 28th, much to the credit of Mr. Opie's ability, this mine was found in a commendable condition.

KEYSTONE NO. 2.

Situated at McLuney, O., on the C. & M. V. R. R., and operated by the same Company as the No. One mine. R. Robb, mine foreman, McLuney, O. P. O. McKinney is superintendent, Zanesville, O. Drift opening to the No. 6 seam, with furnace ventilation, employing 22 miners and 6 day men. April 25th, requested that more attention be given to firing the furnace and keeping it unobstructed with ashes.

KEYSTONE NO. 3.

Located near Crooksville, O., on the C. & M. V. R. R., and operated by the same company as the Numbers One and Two mines. C. A. Mullen, superintendent and mine foreman. Drift opening to the No. 6 seam of coal and ventilated by the use of a furnace. Forty-five miners and 11 day men employed. On March 1st preparations were being made to resume operations on the south side of the mine, which had been suspended for two years previous. Some minor repairs were necessary to properly distribute the air to this section. Otherwise the mine was in compliance with the mining law.

KEYSTONE NO. 4.

Located near McLuney, O., on the C. & M. V. R. R., and operated by the same company as the foregoing mines. P. O. McKinney, superintendent, Zanesville, O., and J. P. Clemens, mine boss, McLuney, O. Drift penetrating the No. 6 seam of coal. On April 26th learned that this mine had suspended indefinitely. On April 20th, the furnace being without fire, no attempt was made to measure the air.

PEDLOW NO. 321.

Situated near Misco, O., on the Z. & W. R. R., and operated by the Sunday Creek Coal Co., Columbus, O. J. W. Bryan, superintendent, Misco, O., and Herman Theisan, of the same place, is mine foreman. Shaft opening to the No. 6 seam of coal, and a fan is the ventilating medium. One hundred and five miners and 28 day men employed. On March 2nd requested safety gates placed on both the ground and top landing, and posted notice forbidding persons from riding the cage unless safety catches were provided, there being two available ways of ingress and egress independent of the hoisting shaft, I did not deem it necessary to give a definite order for safety catches. Owing to the lack of brattices the air was deficient on little east entry. The mine boss was ordered to either make the necessary repairs or remove the men from that section of the mine. On April 6th the improvements had been made, consisting of safety gates and 23 brattices and two doors erected, conducting the air in good condition to little east entry.

BRIAR HILL NO. 322.

Located near Misco, O., on the Z. & W. R. R., and operated by the Sunday Creek Coal Co., Columbus, O. J. W. Bryan, superintendent and mine boss, Misco, O. Slope penetrating the No. 6 seam, fan ventilation, and employs 72 miners and 25 day men, but on January 31st operations had suspended, and still remaining idle. The escapement shaft was 72 feet deep, and no stairway provided. I posted notice forbidding more than ten men employed at any one time in the mine until a lawful escapement way was provided, and advised a new air shaft sunk in preference to erecting a stairway in the fan shaft and obstructing the usefulness of the fan. April 27th, in company with Mr. Pritchard, we found the mine still suspended and no improvement made.

CHESTNUT RIDGE.

Located near Redfield, O., on the Z. & W. R. R., and operated by A. Simons, who is superintendent, Redfield, O. He also acts as mine foreman. Drift to the No. 5 seam of coal, and is ventilated by an iron basket, employing 22 miners and 9 day men. On April 28th the escapement way was flooded with water and unavailable for travel. I requested the water drained off or a new opening made near the face of the workings, and a furnace erected, as the iron basket could not be relied upon for regular ventilation.

TWENTIETH CENTURY.

Situated near Redfield, O., on the Z. & W. R. R., and operated by the W. J. Hamilton Coal Co., Columbus, O. Jno. C. Davis is superintendent, Redfield, O., and E. A. Bratton, of the same place, is mine foreman. Drift to the No. 5 seam of coal, and ventilated by a furnace, employing 40 miners and 12 day men. April 22nd, owing to an inadequate furnace and impaired stoppings, ventilation throughout the mine was deficient. Requested a furnace erected and stoppings repaired, and the mine entrance re-timbered.

PEERLESS

Located near Redfield, O., on the Z. & W. R. R., and operated by the Hamilton & Wallace Coal Co., Saltillo, O. Geo. Wallace, superintendent, Saltillo, O., and Sam'l Steel, mine foreman, New Lexington, O. Drift, No. 5 seam, fan ventilating medium, employing 45 miners and 12 day men. On April 22nd requested a stairway provided in the escapement shaft.

BEECH GROVE.

Located near Lyonsdale, O., on the C. & M. V. R. R., and operated by the Opperman Coal Co., Cambridge, O. Lon Tague, superintendent, McLuney, O., and Lewis Morris, same place, is mine boss. Drift to the

No. 6 seam of coal, fan ventilation, employing 109 miners and 28 day men. On April 25th found the mine had suspended indefinitely on account of dull trade, on April 18th, and was still idle. The fan being in operation, an examination was made and conditions found acceptable. Jas. Pritchard, in charge of the Third Mining District, accompanied me on this visit.

LYONSDALE

Situated at Lyonsdale, O., on the C. & M. V. R. R., and operated by the Muskingum Valley Coal Co., Detroit, Mich. Geo. Greene, superintendent, Zanesville, O., and Jno. Williams, mine foreman, Lyonsdale, O. Drift to the No. 6 seam of coal, a fan being the ventilating medium and employing 115 miners and 31 day men. On April 26th, in company with Jas. Pritchard, we found a violation of the breakthrough law which we requested remedied and some manholes provided along the main motor road.

BEAR RUN NO. I.

Located near Lyonsdale, O., on the C. & M. V. R. R., and operated by W. A. Gosline & Co., Toledo, O. Jno. Britt was superintendent and mine foreman, New Lexington, O. Shaft to the No. 6 seam of coal and is ventilated by a 16 ft. Brazil fan, which affords ventilation for 22 miners and 15 day men. On March 10th, when visiting this mine, I requested a fall removed from the slope and hand rails placed on the stairway, and doors erected to circulate the air. Dec. 6th, E. W. Lewis had succeeded Mr. Jno. Britt as manager. Forty-eight miners and 19 day men were employed. The center entry east had fallen in where it had been widened out to 18 ft. and was threatening to fall to the surface and dislodge the buildings. I advised that it be substantially timbered and driven as originally intended on the triple entry system. Orders given on previous visit had been complied with.

MORGAN COUNTY.

TROPIC.

Located near Deavertown, O., on the Z. & W. R. R., and operated by the G. M. Jones Coal Co., Toledo, O. J. D. Jones, superintendent, Rose Farm, O., and Geo. Lamb, of the same place, is mine boss. A seven foot Stein fan is the ventilating medium. One hundred and eight miners and 38 day men employed, but owing to the dull trade all room work had recently been suspended with the intention to push the entry and provide territory during the summer months. There being no manholes provided

in the slope which was 600 ft. long, an opening was being cut around the fan house to secure a safe travel for mules and men. A shaft near the workings constituted the escapement way.

ROSE.

Located near Deaverstown, O., on the Z. & W. R. R., and is operated by the Carding Coal Co., Columbus, O. Stephen Carding is superintendent, Rose Farm, O., and T. E. Neff is mine boss, of the same place. Drift opening to the No. 6 seam of coal, a fan being used as a ventilating medium, employing 44 miners and 16 day men. On March 3rd the escapement way was found to be unavailable, a creep having closed it up. I requested that a safe and available escapement way be provided by April 1st or force reduced not to exceed ten men at any one time. On April 6th found the opening made and the mine in good condition.

ATHENS COUNTY.

I accompanied D. H. Williams, District Mine Inspector, on a brief visit to mines 255, 266 and 267 on January 10th and found all equipped with powerful fans, indicating that general conditions were good.

SIXTH DISTRICT.

JAS. P. DAVIS,

CARROLL, COLUMBIANA, MAHONING AND TRUMBULL
COUNTIES, AND A PART OF JEFFERSON.

(351)

HON. GEO. HARRISON, *Chief Mine Inspector, Columbus, Ohio.*

SIR: — In accordance with the custom relative to Mines and Mining, I have the honor of submitting to you my eighth annual report of the Mines in the Sixth District. This report covers a period of time beginning January 1st, 1905, and ending December 1st, 1905, showing the number of inspections made, the number of scales tested, the number of permanent improvements made, the number of new mines opened, the number of mines suspended, the number of mines abandoned, the number of fatal accidents, and the cause, and the county in which each accident occurred.

Two hundred and seven inspections were made during the year. Ninety-six inspections were made in Jefferson, forty-five in Columbiana, forty-four in Carroll, thirteen in Mahoning, four in Tuscarawas, two in Trumbull, two in Belmont, and one in Portage County. I tested seventeen pairs of scales, and out of this number three pairs were found to be incorrect. Thirty-five permanent improvements were made. Nine new mines were opened and three were abandoned. Seventeen fatal accidents occurred during the time covered by this report. Thirteen are credited to Jefferson, two to Columbiana, one to Carroll, and one to Portage county. Seven of these accidents were caused by falls of slate, three by electric wires, two by falls of coal, one by mining machine, one by powder explosion, one by trip of loaded cars, one by hoisting cage, and one by falling down a shaft. Eighty-five per cent. of the accidents was due to carelessness or neglect on the part of the miners on account of no attention being paid to the rules laid down by the mine management and the Mining Department.

The coal trade in this District during the year that has just closed has not been as good as it has been in previous years, which is possibly due to overproduction, which would naturally cause a scarcity of cars, which has been the general complaint from operators.

I would favor a revision of the mining laws, as the laws which exist today were made a number of years ago when the coal industry of this state was in its infancy, no coal being mined by electricity or compressed air, but to-day a large percentage of the coal mined is mined by electric power or compressed air. A number of changes could be made and put into effect which would be of great benefit to both miners and operators, but just what changes should be made to benefit all concerned would be a question of some study, but as this is my last report I do not feel like going into detail as to what changes should be made, as it would possibly come with better grace from some one else.

In conclusion I desire to say that the entire number of years of my official relations with the Mining Department have been of a most pleas-

ant character, and I wish to extend my thanks to you and the Department for the many courtesies shown.

Respectfully submitted,

JAMES P. DAVIS, Salem, Ohio.
Inspector Sixth Mining District.

December 31st, 1905.

COLUMBIANA COUNTY COAL MINES.

NEW SHAFT.

Location, Salineville, Ohio. Transportation, C. & P. R. R. Operated by the Big Vein Coal Company, Cleveland, Ohio. E. J. Marshall, superintendent, Lisbon, Ohio. Wm. Thomas, mine foreman, Salineville, Ohio. Shaft opening 40 feet deep, penetrating the No. 7 seam of coal, which is from four to five feet in thickness. A fan is used as a means of ventilation. Eighty miners and forty-two days hands are employed. Four inspections were made during the year. The mine was always found in fair condition as far as the ventilation was concerned, but one of the most difficult mines in the District to keep in order on account of the treacherous draw-slate. The mine is equipped with an electric plant, which furnishes the power for cutting the coal. The rope system of haulage is used.

CEDAR HILL.

Located two miles east of Salineville. Transportation, C. & P. R. R. Operated by the Big Vein Coal Company, Cleveland Ohio. This mine has been idle the entire year.

SLOPE NO. 1.

Located at Salineville, Ohio. Transportation, C. & P. R. R. Owned and operated by the O. & P. Coal Company, Cleveland, Ohio. Jno. Gallagher, superintendent, Salineville, Ohio; Jno. Whalen, Salineville, Ohio, mine foreman. Is a slope 900 feet to the No. 7 seam of coal, which varies in thickness from four to six feet. A fan is used as a ventilating medium. About ninety miners and thirty day hands are usually employed. This mine is equipped with an electric plant. Coal is hauled by motors a distance of two and one-half miles. The mine has been in operation over twenty years, and is worked on the double entry plan. The mine was usually found in fair condition. A new air shaft was sunk the fore part of the year, which made a great improvement in the ventilation.

SLOPE NO. 2.

This mine is located at Salineville, Ohio, on the C. & P. R. R. Owned and operated by the same Company as Slope No. 1. Supt., Jno. Gallagher; mine foreman, Pat Maher. Is a slope opening 1,250 feet to the No. 7 seam of coal, which is about four and one-half feet thick. The mine was usually found in good order. The coal is hauled by an electric motor to the No. 1 chutes, where it is loaded with the coal from Slope No. 1. A coaling station at these mines furnishes the coal for the locomotives.

tives on the Penna. R. R. The balance of the output of these two mines is shipped to Cleveland, where it finds a ready market.

STRABLEY.

Located at Salineville, Ohio. Transportation, C. & P. R. R. Operated by J. S. Strabley, Salineville, Ohio. Supt., J. S. Strabley; Eli. Blazy, mine boss. Drift opening to the No. 7 seam of coal, which is five feet thick. A fan is used as a means of ventilation. About thirty miners and eight day hands find employment. The coal is used for steam purposes, and finds a ready market.

LEETONIA.

Located one mile west of Leetonia. Transportation, P. F. W. & C. R. R. Owned and operated by the Leetonia Coal Company. D. M. Stouffer, superintendent, Leetonia, Ohio. Mike Bradey, mine foreman, Washingtonville, Ohio. Is a slope 150 feet to the No. 3 seam of coal, which is about two and one-half feet in thickness. This mine has been idle the entire year, and practically abandoned on account of the run of mine basis, the Company claiming that they cannot compete with other mines with the present system of mining.

PROSPECT HILL NO. 1.

Located at East Palestine, on the main line of the P., F. W. & C. R. R. Owned and operated by the Prospect Hill Coal Co., East Palestine, Ohio. Supt., Grant Hill, East Palestine, Ohio; Thos. Stackhouse, mine foreman, East Palestine, Ohio. Is a slope opening 600 feet, penetrating the No. 6 seam of coal, which is three and one-half feet in thickness. A fan is used as a means of ventilation. One hundred and twenty miners and nineteen day hands find employment. This mine was always found in fair condition. This mine is equipped with a compressed air plant. The coal is mined by the use of the Ingersoll-Sargent punching machine. Rope haulage is used to convey the coal to the chutes.

FAIRFIELD NO. 2.

Located at New Waterford, Ohio. Transportation, P., F. W. & C. R. R. Operated by the Fairfield Coal Company, Cleveland, Ohio. Jno. Moon, superintendent, and Wm. Shasteen mine foreman. Is a drift opening to the No. 6 seam of coal, which is about three feet ten inches in thickness. A fan is used as a means of ventilation. About one hundred and forty-five miners and twenty-five day hands are employed. This mine was always found in good order. A system of rope haulage is used in this mine, the coal being hauled a distance of three miles. The coal is used for both steam and domestic purposes.

ANNUAL REPORT

STATE LINE NO. 1.

Located at East Palestine, Ohio. Transportation, P., F. W. & C. R. R. Operated by the State Line Coal Co., Cleveland, Ohio. Hugh Laughlin, superintendent, East Palestine, Ohio; Geo. Southern, mine foreman, East Palestine, Ohio. Is a drift opening to the No. 6 seam of coal, which is about four feet thick. A fan is used as a ventilating medium. About one hundred and seventy-five miners and twenty day hands are employed. The tipples and all the machinery and about 1,900 feet of the main haulway are in Ohio; all of the mining is done in Pennsylvania.

STATE LINE NO. 3.

Located at East Palestine, Ohio. Transportation, P., F. W. & C. R. R. Operated by the National Fire Proofing Co. David Bolander, superintendent, East Palestine, Ohio; Chas. Jones, mine foreman. Is a drift opening to the No. 7 seam of coal, which is about two and one-half feet in thickness. A fan is used for ventilating purposes. Twenty miners and four day hands are employed. This is a coal and clay mine combined. From three to four feet of clay lies directly under the coal, and is being mined. The clay is manufactured into sewer pipes and building blocks. The coal is all consumed at their plant.

PROSSER NO. 4.

Located at Lisbon, Ohio. Transportation, Erie R. R. Owned and operated by Card & Prosser, Lisbon, Ohio. Superintendent, Thos. Prosser; mine foreman, David Lewis. Is a drift opening to the No. 6 seam of coal, which is about two and one-half feet in thickness. A fan is used as a ventilating medium. Twenty-seven miners and seven day hands are employed. Three and one-half feet of clay is being mined with an electric chain machine, and is hauled to the top of the incline by an electric motor. The clay is ground at the plant, and finds a ready market at mills and blast furnaces. The coal is of a superior quality, and is principally used for steam purposes.

LISBON.

Located at Lisbon, Ohio. Transportation, Erie R. R. Operated by the Lisbon Coal Company, Lisbon, Ohio. E. J. Marshall, superintendent; Thos. Thomas, mine foreman. Drift opening to the No. 3 seam of coal. The mine was worked out and abandoned on February 21st, 1905.

NEW HOUSE.

Located at Elkton, Ohio. Transportation, the Lisbon & Western R. R. Owned and operated by the Herriott Coal Company, Elkton, Ohio.

C. C. Herriott, superintendent; Jonah Byers, mine foreman. Drift opening to the No. 7 seam of coal, which is about three feet thick. A furnace is used as a means of ventilation. From twenty to thirty miners find employment. The mine is equipped with an electric plant. This is the only mine in Columbiana County that is operated by non-union miners.

PLEASANT VALLEY.

Is located at Negley, on the Lisbon & Western R. R. Operated by the Powers Mining Company, Negley, Ohio. P. M. Murphy, superintendent and mine boss. Drift opening to the No. 6 seam of coal, which is two and one-half feet in thickness. A furnace is used as a ventilating medium. This mine has been idle the greater part of the year. About twenty-seven miners and four day hands are employed.

PINE HILL.

Located three miles west of Lisbon, Ohio, on the Erie R. R. Owned and operated by Card & Prosser, Lisbon, Ohio. Thos. Prosser, superintendent, Lisbon, O.; Wm. Lewis, mine foreman, Teegarden, Ohio. Shaft opening fifty feet deep to the No. 3 seam of coal, which is about three feet in thickness. A fan is used as a means of ventilation. About fifty miners and ten day hands are employed. This mine has been in operation for a number of years, and from present indications will be worked out and abandoned in the near future.

BIG WALNUT.

Located two and one-half miles east of Salem, on the Salem R. R. Operated by the Peerless Coal Company, Cleveland, Ohio. I. N. Russell, superintendent and mine boss, Salem, Ohio. Is a slope opening 300 feet to the No. 3 seam of coal, which is about three feet four inches in thickness. A fan is used for ventilating purposes. About fifty-five miners and thirteen day hands are employed. This mine is worked on the single entry plan. The coal is practically shot from the solid, and paid for on the run of mine basis. Shot firers were employed on account of an explosion which occurred last year. This is the only mine in the district where shot firers are employed. A number of mines in this locality have been closed down on account of the condition in which the coal was mined, and it is my opinion that they will not resume operations until a different agreement is reached in regard to the method used in mining the coal.

SALEM.

Is located two miles east of Salem, Ohio, on the Salem R. R. Owned and operated by the Salem Coal Company. Wm. Dunn, superintendent and mine foreman, Salem, Ohio. The mine was closed down in Novem-

ber, 1904, indefinitely on account of the system of mining the coal, the Company claiming that it was impossible to compete with others in the market under the present system of mining, and operations will not be resumed until coal is mined on a screened basis.

FARQUHAR SHAFT.

Located one mile east of Salem, Ohio. Operated by the Lemmon Coal Company, Salem, O. O. H. Lemmon, superintendent; Thos. Brothers, mine foreman. Is a shaft opening 120 feet, penetrating the No. 3 seam of coal, which is three feet thick. A fan is used as a means of ventilation. From fifteen to twenty miners are employed. This mine is of the domestic class. The entire output is hauled to Salem, Ohio, for steam and domestic purposes.

AVERAGE.

Located at Washingtonville, Ohio. Operated by J. D. Smith. Drift opening to the No. 3 seam of coal, which is three feet in thickness. A fan is used as a ventilating medium. About fifteen miners and four day hands are employed. This mine is of the domestic class, the coal being used for domestic purposes.

MCNABB SHAFT.

Is located at Salem, Ohio, just outside of the city limits, and is operated by the Salem Coal Company, and is under the supervision of Jno. T. Reese. Is a shaft opening 235 feet deep, penetrating the No. 6 seam of coal, which is about three feet thick. A fan is used for ventilating purposes. Twenty miners find steady employment. This mine is of the domestic class, the entire output being used in the city of Salem. I was compelled to close this mine down on account of there being no second opening or escapement.

SMALL COAL MINES IN COLUMBIANA COUNTY.

Name of Mine.	Name of Owner or Operator.	Name and P. O. Address of Superintendent.	No. of Miners.	No. of Day Hands.	Kind of Opening.	Mode of Ventilation.	No. of Seam.	Thickness of Vein.	Plan of Working Mine.	Kind of Haulage.
Vasey	Kirk & Vasey	R. Vasey, Salineville, O.	12	3	Drift ...	Furnace	S. V.	3	Single	Mule.
Uneeda	Uneeda Coal Co.	H. S. Burnett, Lisbon, O.	7	2	Drift ...	Furnace	3	2½	Single	Mule.
Wheat Hill No. 2	Wheat Hill Coal Co.	J. Fleming, E. Palestine, Ohio	13	4	Drift ...	Fan	1	3	Single	Mule.
Pine Hollow	Pine Hollow Coal Co.	Jas. Ashman, Salem, O.	17	5	Drift ...	Furnace	3	2½	Single	Mule.
McMillan	R. McMillan	R. McMillan, E. Palestine, Ohio	7	2	Drift ...	Natural	6	3½	Single	Mule.
Sears	Jas. Leeper	Jas. Leeper, Salem, Ohio.	4	1	Drift ...	Furnace	3	9" 9"	Single	Mule.
Bonsal	Auld & Son	Robt. Auld, Salem, Ohio.	5	1	Drift ...	Furnace	3	3	Single	Mule.
Rush Ridge	Joe Shriver	Joe Shriver, Salem, Ohio.	3	1	Drift ...	Furnace	3	3	Single	Mule.
Neiheisel	Neiheisel Bros.	J. Neiheisel, Salem, Ohio.	10	3	Slope ...	Furnace	3	3	Single	Mule.
Sheehan	Jas. Sheehan	Jas. Sheehan, Salem, O.	4	1	Shaft ...	Natural.	3	3	Single	Mule.
Howell	C. Howell	C. Howell, Salem, Ohio.	5	1	Drift ...	Fan	3	9"	Single	Mule.
Prospect Hill No. 2	Prospect Hill Coal Co.	Grant Hill, E. Palestine, Ohio	9	2	Drift ...	Furnace	7	3' 4"	Single	Mule.
Salt Run	Ohio Coal & Coke Co.	Isaac Thomas, Irondale, Ohio	10	3	Drift ...	Fan	6	3½	Single	Rope.

CLAY MINES IN COLUMBIANA COUNTY.

Name of Mine.	Kind of Opening.	Name of Firm or Owner.	No. Men Employed.	P. O. Address.
No. 36	Drift	American Sewer Pipe Co.	9	Lisbon, Ohio.
Oak Hill	Slope	Columbia Fire Clay Co..	15	Cleveland, Ohio.
Buckeye	Drift	McLain Fire Brick Co...	15	Pittsburg, Pa.
Vulcan	Drift	American Sewer Pipe Co.	15	E. Liverpool, O.
Walker No. 1.....	Drift	American Sewer Pipe Co.	9	E. Liverpool, O.
N. K. & A.....	Slope	American Sewer Pipe Co.	10	E. Liverpdol, O.
Champion	Drift	Champion Clay Co.....	13	Wellsville, Ohio.
Prosser No. 5.....	Shaft	Card & Prosser.....	11	Lisbon, Ohio.

CARROLL COUNTY COAL MINES.

SOMERS NO. 3.

Located at Sherodsville, Ohio. Transportation, W. & L. E. R. R. Operated by the Somers Mining Co., Cleveland, Ohio. Wm. Maloney, superintendent, Sherodsville, Ohio; Joe Breehl, mine foreman, Sherodsville, Ohio. Shaft opening 152 feet deep to the No. 6 seam of coal, which is four feet thick. A fan is used as a means of ventilation. About one hundred miners and thirty-five day hands are employed. This mine was temporarily abandoned on the first of March on account of the condition of the coal trade. This mine is worked on the double entry system. The coal is mined by electrical machinery.

SOMERS NO. 2.

Located at Sherodsville, Ohio. Transportation, W. & L. E. R. R. Operated by the Somers Mining Co., Cleveland, Ohio. Wm. Maloney, superintendent; Harry Harris, mine foreman, Sherodsville, Ohio. Is a shaft opening 71 feet deep to the No. 6 seam of coal, which is about four feet thick. A fan is used as a ventilating medium. About one hundred miners and thirty-five day hands are employed. This mine was always found in first-class condition. The coal is shipped to Cleveland, Ohio, where it is used for steam purposes. On account of the dullness of the coal trade the mine was closed down for three months during the year. The mine is worked on the double entry plan. Motor haulage is used, and the coal is mined by electrical machinery.

NO. 5.

This mine is located on a branch of the W. & L. E. R. R., two miles east of Sherodsville, Ohio. Is operated by the Van Kirk Mining Co., Mineral City, Ohio. J. F. Myers, superintendent, Sherodsville, Ohio; P. S. Robinson, mine foreman, Sherodsville, Ohio. Is a drift opening to the No. 7 seam of coal, which is three and one-half to four and one-half feet thick. A furnace is used as a means of ventilation. Twenty-two miners and four day hands are employed. This mine was owned at one time by the J. H. Somers & Co., and was abandoned on account of a fault or a horseback cutting out the coal. The Van Kirk Coal Company re-leased and re-opened it, and have driven through the fault with prospects of a fair territory for coal.

HEATHERINGTON NO. 3.

This mine is located three miles south of Salineville, Ohio, on a branch of the C. & P. R. R., and operated by the Sterling Mining Co.,

Cleveland, Ohio. Superintendent, Jno. Hileman, Washingtonville, Ohio; mine foreman, Richard Heatherington, Salineville, Ohio. Is a drift opening to the S. V. coal, which is four feet thick. A fan is used as a ventilating medium. About seventy-five miners and fourteen day hands are employed. This mine is worked on the single entry system, and is equipped with motor haulage, a third rail electric motor being used, which is giving good satisfaction.

HEATHERINGTON 'BIG VEIN.

Location the same as No. 3, and owned by the same Company, and under the same management. Is a slope opening 125 feet, penetrating the No. 7 seam of coal, which is four feet thick. This seam of coal has a slate band running through about the center of the vein, and runs anywhere from four to ten inches in thickness, which makes it very expensive to mine. Only four men are employed driving a pair of entries in order to make a test of this coal. Should this band continue the mine will be abandoned on account of it being too expensive to mine.

BEATTY.

Located at Magnolia, Ohio. Is owned by the National Fire-Proofing Company. Hermann Kessler, superintendent; Chas. Darr, mine foreman. Is a drift opening to the No. 5 seam of coal, which is from four to six feet thick. A furnace is used for ventilation. This mine is worked on the single entry plan, and fifteen miners and five day hands are employed. The entire output of this mine is used at their block and tile plant.

LINDEN NO. 6.

This mine is located at Lindentree, Ohio. Transportation, Valley R. R. Operated by the Davis R. R. Coal Co., Canton, Ohio. W. L. Davis, superintendent, Canton, Ohio; J. J. Evans, mine foreman, Lindentree, Ohio. Is a drift opening to the No. 6 seam of coal, which is three and one-half feet thick. Sixty-five miners and twelve day hands are employed. This mine is equipped with an electric plant, and is ventilated by a fan. The rope haulage system is used to convey the coal to the chutes.

MAGNOLIA.

Located at Magnolia, Ohio. Transportation, C. & P. R. R. Operated and owned by the Magnolia Coal Company, Magnolia, Ohio. Superintendent, Joe Dagenhardt, Magnolia, Ohio; mine foreman, Ed. Branfield, Magnolia, O. Is a shaft opening 68 feet deep, penetrating the No. 5 seam of coal, which is four feet thick. Seventy-five miners and twenty-seven day hands are employed. This mine is worked on the double entry system, and is ventilated by a fan. This mine is kept in fair condition con-

sidering the disadvantages that exist. The coal is mined with electrical machinery, and is shipped principally to Cleveland, Ohio, and finds a ready market for both domestic and steam purposes.

RUSSELL HILL.

Located at Dellroy, Ohio. Transportation, W. & L. E. R. R. Owned by the James Mining Co., Dellroy, Ohio. Wm. James, superintendent, Dellroy, Ohio; mine foreman, J. H. Thomas, Dellroy, Ohio. Is a shaft opening 60 feet deep to the No. 6 seam of coal, which is from three and one-half to four feet thick. A furnace is used as a means of ventilation. From twenty to twenty-five miners and ten day hands are employed. This mine was equipped with an electric plant a short time ago. The mine is worked on the single entry plan. The coal is of a good quality, and finds a ready market both for steam and domestic purposes.

KIRK.

Located at Salineville, Ohio. Transportation, C. & P. R. R. Owned by Kirk & Deveny, Salineville, Ohio. Superintendent, Harry Kirk, Salineville, Ohio; mine foreman, Jno. Hurst, Salineville, Ohio. Is a drift opening to what is known as the S. V. Coal, which is about three feet thick. A furnace is used as a means of ventilation. About fifteen miners and three day hands are employed. A number of improvements have been made at this mine, a tipple was erected, and it is reported that an electric plant is to be installed. The coal is of a good quality, and takes readily in the market.

CLAY MINES IN CARROLL COUNTY.

BIG FOUR.

Located at Malvern, Ohio, and operated by the Big Four Clay Co., Malvern, Ohio. Geo. Neiglinger, superintendent, Malvern, Ohio; John M. Gween, mine foreman, Malvern, Ohio. Is a drift opening to the No. 6 seam of clay, which is about 7 feet in thickness. A new furnace was erected, and a second opening, made, which put the mine in first class condition. From twelve to fifteen miners find employment. Three inspections were made during the year.

SANDY VALLEY.

Located at Malvern, Ohio. Transportation, C. & P. R. R. Operated by the Malvern Fire Clay Co., Malvern, Ohio. Jno. Fisher, superintendent, Malvern, Ohio; M. Buck, mine foreman, Malvern, Ohio. Is a

drift opening to the No. 6 seam of clay, which runs from seven to eight feet in thickness. A furnace is used for ventilation. From fifteen to eighteen miners find steady employment. This mine was usually found in good condition.

MINERVA.

This mine is located at Pekin, Ohio, on the C. & P. R. R. Owned and operated by the Minerya Clay Co., Minerva, Ohio. A. L. Currey, superintendent and manager. Is a drift opening to the No. 5 seam of coal, which is about five and one-half feet in thickness. A fan is used to ventilate the mine. From seven to twelve miners find steady employment.

MALVERN.

Located at Malvern, Ohio. Transportation, C. & P. R. R. Owned and operated by the Robinson Product Company, Akron, Ohio. N. A. Lawton, superintendent, Malvern, Ohio; Albert Senfts, mine foreman, Malvern, Ohio. Is a drift opening to the No. 6 seam of clay, which is about seven and one-half feet in thickness. A fan is used for a ventilating medium. From thirty-five to forty miners find steady employment. I was compelled to close this mine down on account of there being no second opening. A new fan was erected for ventilating purposes, which took the place of the furnace; this gave them the second opening. This is the largest clay mine in the county. An electric plant has been installed, from the power of which the drilling is done. The mine is lighted up throughout with electric lights, which makes it very convenient for employees. Four inspections were made during the year.

SMALL COAL MINES IN CARROLL COUNTY.

Name of Mine.	Name of Owner or Operator.	Name and P. O. Address of Superintendent.	No. of Miners.	No. of Day Hands.	Kind of Opening.	Mode of Ventilation.	No. of Seam.	Thickness of Vein.	Plan of Working Mine.	Kind of Haulage.
Huston	R. C. Faucett.....	Ira Moody, Carrollton, O.	9	1	Drift ...	Furnace	7	4½	Single	Mule.
Rutan	D. O. Rutan.....	Jno. Moody, Carrollton, Ohio	5	2	Drift ...	Steam exhaust	7	4½	Single	Mule.
Justice	D. S. Maughman.....	D. S. Maughman, Sherrods- ville, Ohio	4	1	Drift ...	Natural.	7	4	Single	Mule.
Baker	Wm. Rutter	Wm. Rutter, Leesville, Ohio	2	1	Drift ...	Natural.	7	3½	Single	Mule.
Pearch	C. Pearch	C. Pearch, Sherrods- ville, Ohio	3	1	Drift ...	Natural.	7	3' 10"	Single	Mule.
Close	Peter Close	Peter Close, Dellroy, O.	3	...	Drift ...	Natural.	7	5	Single	Mule.
Preston	H. E. Preston.....	H. E. Preston, Leesville, Ohio	4	1	Drift ...	Furnace	7	4	Single	Mule.
German	D. S. German.....	D. S. German, Sherrods- ville, Ohio	2	...	Drift ...	Natural.	7	4½	Single	Mule.
Minerva	Minerva Brick Paving Co.	A. L. Currey, Minerva, Ohio	6	1	Slope ...	Fan	5	2½	Single	Rope.

JEFFERSON COUNTY COAL MINES.

WEST PITTSBURG.

This mine is located two and one-half miles south of Bergholz, on the L. E. A. & W. R. R., and is owned by the Eastern Ohio Coal Co., Cleveland, Ohio. R. T. Price, superintendent, Cleveland, Ohio; Howard Williams, mine foreman, Bergholz, Ohio. Is a slope opening 210 feet, penetrating the No. 6A seam of coal, which is five feet thick. A fan is used for ventilating purposes. About two hundred miners and fifty day hands find employment. This mine is equipped with an electric plant, and first class machinery, and is worked on the double entry system. The coal is of fine quality. (Will just say that this is the only No. 6A coal being worked in the State, and gives excellent satisfaction for domestic purposes.) Two motors are used to haul the coal to the bottom of the incline. This mine was always found in first class condition.

JUMBO.

This mine is located at Bergholz, Ohio, on the L. E. A. & W. R. R. Owned by the Salsbury Coal Company, Columbus, Ohio. Albert Thorpe, superintendent and mine boss, Bergholz, Ohio. Is a drift opening to the No. 7 seam of coal, which is about three and one-half feet in thickness. This mine has been equipped with an electric plant with motor haulage. It has been idle most of the year.

ZERBE.

Located at Amsterdam, Ohio, on the L. E. A. & W. R. R. Owned and operated by the O. & P. Coal Company, Cleveland, Ohio. G. F. Waggoner, superintendent, Amsterdam, Ohio; Henry McAbier, mine boss. Is a shaft opening 189 feet, penetrating the No. 6A coal, which is from four and one-half to five feet thick. Two fans are used for ventilating mediums. One hundred and seventy-five miners and forty-seven day hands are employed. Five inspections were made during the year. A great deal of unnecessary trouble has been experienced at this mine on account of the bad feeling existing between the superintendent and the mine manager. On Oct. 25th I made a general inspection of this mine in company with Chief Inspector Harrison and District Inspector Miller, on account of the numerous complaints coming to the Department of the conditions existing in the mine. Our investigation found the general conditions good. The principal complaints were, that the miners were not receiving the proper timber for posting their working places, and the inconvenience of traveling the second opening or escapement way. We found the second opening very wet, although available, but not a fit place

for men to travel. We took these matters up with the Company, and in a short time the escapement way was put in good condition, and timbers were furnished suitable for the men. This mine is equipped with an electric plant, and motor haulage is used. The coal is of a superior quality and compares favorably in the market with the Massillon coal.

FLORENCE.

This mine is located close to Hopedale, Ohio, on the L. E. A. & W. R. R. Operated by the Witch Hazel Coal Company, Youngstown, Ohio. D. J. Jacobs, superintendent, Hopedale, Ohio, and Thos. Miller, mine foreman, Hopedale, Ohio. Is a drift opening to the No. 8 seam of coal, which is about five feet thick. A fan is used for ventilation. Ninety miners and twenty day hands are employed. This mine is opened up on the double entry system, and is equipped with an electric plant. The third rail motor is used for haulage. The coal is of first quality, and is shipped to Cleveland and Youngstown, where it finds a ready market. The mine was always found in poor condition, the ventilation scarcely sufficient for the number of men employed, also the roads were very wet and muddy. A great deal of this was due to the carelessness of the mine foreman. This mine was visited on Nov. 23rd, and found in about the usual condition. I suggested to the superintendent that the greatest improvement he could make would be to employ a new mine foreman at once.

BRILLIANT SHAFT.

This mine is located at Brilliant, Ohio, on the main line of the River Division of the C. & P. R. R. Is owned by Geo. Laughlin. Operated by the Pan Handle Coal Co.,*Cleveland, Ohio. R. T. Price, superintendent, Cleveland, Ohio; D. H. Thomas, mine foreman, Brilliant, Ohio. Is a shaft opening 266 feet deep, penetrating the No. 6 coal, which is from three to four and one-half feet thick. Two fans are used for ventilating mediums. This mine has been opened a number of years, and is not in the best of order. Considerable gas is encountered in this mine, which makes it necessary to have a current of air traveling through the old works as well as the present workings. The lease which the Pan Handle Coal Company held expired Oct. 1st, when it reverted back to the Laughlin Coal Co. This mine has not been in operation more than three days a week. The coal is of a fair quality, and is usually sold for steam purposes, but on account of the condition of the coal trade it was a hard problem to put this coal on the market to compete with other coal that could be mined cheaper.

AMSTERDAM.

Located one mile south of Amsterdam, on the L. E. A. & W. R. R., and is operated by the Y. & O. Coal Company of Cleveland, Ohio. Jno. T. Reese, Salem, Ohio, superintendent and manager. This is a shaft

opening 287 feet deep, penetrating the No. 6A seam of coal, which is four feet thick. About one hundred miners and thirty-four day hands are employed. This mine is opened up on the double entry system, and is equipped with an electric plant, and with the latest improved machinery for handling coal. On account of this mine generating fire damp the greatest care is necessary to avoid accidents. On March 30th I was called to this mine on account of a fire which had originated on the south side of the mine on the first right entry. It had only been burning a short time when it was discovered. The fire spread very rapidly. This seam of coal is different from any I have ever seen on account of the great amount of gas, the coal burns almost like shell-bark, and only by the prompt action of the mine boss and his force of men was the fire put under control. Had this fire not been discovered when it was, there is no doubt in my mind but that the shaft would have to have been sealed or flooded. On Oct. 12th, in company with W. H. Miller, Assistant Attorney General of the State, Geo. Harrison, Chief Mine Inspector, and Thos. McGough, District Inspector, this mine was inspected on account of it being the deepest in the state, and generating more fire damp than any other, making it one of the most dangerous mines to manage. A careful inspection was made as to the system of ventilation, special attention was paid to the trap doors, also machinery for lowering and hoisting the men with a view to making changes in the present mining laws to suit the conditions as they exist today. We also found that the management was using all precaution to avoid accidents.

JEFFERSON NO. 1.

Is located at Piney Fork, Ohio, on the L. E. A. & W. R. R. Is operated by the Jefferson Coal Co., Cleveland; Ohio. Jno. Simpson, superintendent, Piney Fork, Ohio; Richard Wilson, mine foreman, Piney Fork, Ohio. Is a drift opening to the No. 8 seam of coal, which is five feet thick. A fan is used as a means of ventilation. About one hundred and fifty miners and thirty-eight day hands are employed. The coal is mined by electric power, and is hauled to the chutes by an electric motor. This mine has always been found in good condition. The coal is of first quality, and takes readily in the market for domestic purposes. The management of this mine is second to none, Mr. Simpson, the superintendent, being one of the most efficient in the District, and everything is managed with the least possible friction.

JEFFERSON NO. 2.

This mine is located at Piney Fork, Ohio. Transportation, L. E. A. & W. R. R. Is operated and managed by the same Company as Jefferson No. 1. Is a drift opening to the No. 8 coal, which is about five feet in thickness. A fan is used for a ventilating medium. About one hundred and eighty miners and forty day hands are employed. This mine was

always found in good condition. The coal is mined by electric chain machines, and is hauled to the chutes by an electric motor. The coal in this mine is superior to that of No. 1, it having the best top of any No. 8 coal in the District. It is shipped in great quantities to the Lakes, where it gives excellent satisfaction for both steam and domestic purposes.

JEFFERSON NO. 3.

This mine is located three miles south of Piney Fork, Ohio, on the L. E. A. & W. R. R. Jno. Simpson, superintendent, and Fred Aspinall, mine foreman. Is a drift opening, penetrating the No. 8 coal, which is about five feet thick. This mine was idle the greater part of the year. On my last visit, Nov. 21st, thirty-two miners and eight day hands were employed.

LA BELLE.

This mine is located at Steubenville, Ohio. Transportation, C. & P. R. R. and the W. & L. E. R. R. Is operated by the La Belle Iron Works. P. J. Harrigan, superintendent; A. Lafferty, mine foreman, Steubenville, Ohio. Is a shaft opening 200 feet deep, penetrating the No. 6 seam of coal, which is about three and one-half feet in thickness. About one hundred and seventeen miners and twenty-six day hands are employed. This is an old mine, which was known for a number of years as the Jefferson mine. A number of years ago water broke into one of the headings leading under the river, and the owners thought the break came from the river, and abandoned the mine. Later the mine was sold to the La Belle Iron Works, which they re-opened, pumped the water out, and found that it had not come from the river. A great deal of trouble was met with while the work was in progress, as the mine was found to be very gaseous, causing a number of men to be burned, some fatally. The conditions existing caused the work to go very slowly, which made it very expensive. The mine at present is equipped with both electricity and compressed air. All of the workings of this mine at present are in West Virginia, and comes under the jurisdiction of the Mining Department of that State. This mine has been inspected jointly by the West Virginia Inspector and myself for the last year, as it was decided by the Attorney General that the Mining Department of the State of Ohio had no jurisdiction over this mine farther than the low water mark on the Ohio side. My last visit found this mine in good condition.

X L.

This mine is located at Bergholz, Ohio, on the L. E. A. & W. R. R. Operated by the X L Coal Company, Bergholz, Ohio. Jno. Kirk, superintendent, mine foreman, and principal owner. Is a slope opening 100 feet, penetrating the No. 6A seam of coal, which is three feet thick. A fan is used for ventilating purposes. About forty miners and seven day

hands find steady employment. The mine is equipped with an electric plant. The coal is of an excellent quality, and takes readily in the market along with the Massillon coal.

PLUM RUN NOS. 1, 2, 3 AND 4.

These mines are located six miles north of Rush Run, on a branch of the C. & P. R. R. Owned and operated by the United States Coal Co., Cleveland, Ohio. H. A. Boyer, superintendent; Wm. Gibson, mine foreman, Smithfield, Ohio. These are drift openings to the No. 8 coal, which is five feet thick. About two hundred and ten miners and fifty day hands are employed. These are practically new mines, and the coal is all hauled to the tipple. This coal is mined and hauled by electric machinery, the power being furnished from the United States Mines at Bradley, Ohio.

UNITED STATES MINES.

These mines are located five miles northeast of Dillonvale, O., on the L. E. A. & W. R. R. Are owned and operated by the United States Coal Co., Cleveland, Ohio. H. E. Willard, general superintendent, Cleveland, Ohio; Thos. Stiff, superintendent, Bradley, Ohio. There are ten different openings at this plant, which penetrate the No. 8 seam of coal. About five hundred miners and one hundred day hands are employed. These openings are divided into sections. Nos. 1, 2, 3 and 4 are called section No. 1. Wm. Shaw is mine foreman. This section is ventilated by an electric fan. Nos. 5 and 6 are called section No. 2, and Jas. Abercrombie is mine foreman. This section is also ventilated by an electric fan. Nos. 7 and 8 are called section No. 3. C. L. Shutt is mine foreman. A fan is also used as a ventilating medium. Nos. 9 and 10 are called section No. 4. C. H. Vickers is mine foreman. This section is also ventilated by a fan. The postoffice address of the mine foremen is Bradley, Ohio. This is one of the largest plants in the No. 8 coal, and possibly the largest in the State. This plant is equipped to handle a large tonnage, about 3,000 tons being shipped daily from the mine.

ROLLING MILL NO. 2.

This mine is located at Irondale, Ohio, on the C. & P. R. R., and is owned by the Irondale Coal Co. J. Wood is superintendent, Irondale, Ohio. Sam Madison is mine foreman, Irondale, Ohio. Is a drift opening to the No. 7 coal, which is very irregular in thickness. This mine has been idle the entire year.

HIGH SHAFT.

Is located at Steubenville, Ohio, with no railroad connections. Is operated by the Steubenville Mining Company, Steubenville, Ohio. Wm. Smurthwaite is superintendent, Mathew Cassner mine foreman. Is a

shaft opening 227 feet deep, penetrating the No. 6 seam of coal, which is about three feet eight inches in thickness. Three fans are used for ventilating purposes. About thirty miners and fifteen day hands are employed. This is one of the oldest mines in operation in the State, having been in operation almost fifty years. An electric plant was installed a few years ago to mine and haul the coal to the bottom of the shaft. The coal is now being hauled three and one-half miles. The entire output of this mine is consumed in Steubenville, Ohio, for domestic purposes. This mine is worked on what is known as the County of Durham plan, and was always found in the best of order, Wm. Smurthwaite, the superintendent, being one of the most efficient mining engineers in the State. He has had charge of this mine for over forty years, and while he is getting old and quite feeble he still travels the inside workings, and all work is done under his supervision.

BLOCK HOUSE RUN.

This mine is located two miles south of Brilliant, Ohio, on a branch of the C. & P. R. R., and is owned by the Dexter Coal Company. Robert Insko is superintendent and mine boss, Brilliant, Ohio. Is a drift opening to the No. 8 seam of coal, which is about five feet thick. This mine was formerly owned by the Brilliant Coal Co., and has been idle for more than a year. It was sold during the year to what is known as the Dexter Coal Company. The mine has only been in operation four months during the year. The mine was found in fair condition. The Company expects to install an electric plant at this mine in the near future.

DIAMOND NO. 3.

Is located at Yellow Creek, on the main line of the C. & P. R. R. Owned and operated by W. E. Smith, Wellsville, Ohio. R. J. Borden, superintendent and mine foreman, Wellsville, Ohio. Is a drift opening to No. 6 coal, which is three feet four inches in thickness. A new fan was erected during the year for ventilation. This mine is worked on the single entry plan, but has only been in operation a part of the year. From five to ten miners are all that have been employed for a number of months. The entire output of this mine is consumed at the brick plant owned by W. E. Smith, Wellsville, Ohio.

NICHOLSON.

This mine is located two miles north of Toronto, Ohio, on the C. & P. R. R., and is owned by the Toronto Fire Clay Company, Steubenville, Ohio. C. W. Bishop, superintendent; Miles Lee, mine foreman. Is a drift opening to the Rogers seam of coal, which is about three feet in thickness. This mine is worked on the single entry plan, with furnace ventilation. About fifteen miners and four day hands are employed.

WABASH.

Located at Youngs Station, Ohio. Transportation, Wabash R. R. Is owned and operated by the Wabash Coal Company, Cleveland, Ohio. W. P. Bates, superintendent, Cadiz, Ohio; Jas. Price, mine foreman. This is a new mine opened up in the No. 8 seam of coal, located fifteen miles west of Mingo, on the main line of the Wabash R. R. The mine is well equipped for handling a large tonnage. This is the only pick mine in the No. 8 coal in eastern Ohio. An electric plant will be installed in the near future. Ninety miners and seventeen day hands are employed. The mine is opened up on the double entry system with fan ventilation. The coal is five feet in thickness, and is second to none in the No. 8 coal of Jefferson County. The mine was idle all of the fore part of the year on account of the dullness of the coal trade.

SMALL COAL MINES IN JEFFERSON COUNTY.

Name of Mine.	Name of Owner or Operator.	Name and P. O. Address of Superintendent.	No. of Miners.	No. of Day Hands.	Kind of Opening.	Mode of Ventilation.	No. of Seam.	Thickness of Vein.	Plan of Working Mine.	Kind of Haulage.
Taylor	Wm. Taylor & Son...	W. Taylor, Bergholz, O.	7	3	Drift ...	Furnace	6	3½	Single	Mule.
Great Western.....	Amer. Sewer Pipe Co.	Jas. Duke, Toronto, O.	18	5	Drift ...	Fan	R. V.	3	Single	Boys.
Calumet	Amer. Sewer Pipe Co.	S. McAdoo, Calumet, O.	14	4	Drift ...	Furnace	R. V.	3	Single	Mule.
Forest City	Amer. Sewer Pipe Co.	W. B. Francey, Toronto, Ohio	19	3	Drift ...	Fan	R. V.	3	Single	Mule.
East Ohio	E. Ohio Sewer Pipe Co.	E. W. Williams, Iron- dale, Ohio	12	4	Drift ...	Furnace	R. V.	3	Single	Mule.
Hill Top	Amer. Sewer Pipe Co.	S. McAdoo, Calumet, O.	4	1	Drift ...	Furnace	7	3½	Single	Mule.

CLAY MINES IN JEFFERSON COUNTY.

Name of Mine.	Kind of Opening.	Name of Firm or Owner.	No. Men Employed.	P. O. Address.
Calumet	Slope	American Sewer Pipe Co.	16	Toronto, Ohio.
Myers	Slope	Myers Clay Co.....	10	Toronto, Ohio.
East Ohio	Shaft	E. Ohio Sewer Pipe Co.	17	Irondale, Ohio.
Porter No. 1.....	Drift	Standard Brick Co.....	6	Irondale, Ohio.
Porter No. 2.....	Drift	Standard Brick Co.....	7	Irondale, Ohio.
Forest City	Slope	American Sewer Pipe Co.	16	Toronto, Ohio.
Lacey No. 2.....	Drift	Adolph Pritchaw	4	Irondale, Ohio.
Little Giant	Shaft	Toronto Fire Brick Co...	25	Toronto, Ohio.
Freeman	Drift	American Sewer Pipe Co.	14	Toronto, Ohio.
Minor	Drift	Minor Fire Brick Co....	9	Empire, Ohio.
Stratton	Drift	Stratton Fire Clay Co...	9	Empire, Ohio.

MAHONING COUNTY COAL MINES.

NORTH LIMA.

This mine is located ten miles south of Youngstown, Ohio, on the Youngstown & Southern Electric R. R. Operated by the Y. & L. E. R. R. Company, Youngstown, Ohio. E. G. Biddison, superintendent, North Lima, Ohio. Is a shaft opening 66 feet deep, penetrating the No. 3A seam of coal, which is two feet three inches in thickness. A fan is used for ventilation. This mine is worked partly on the double entry system, and partly on the single entry plan. While this vein of coal is very thin and expensive to mine, it is stated that it is of superior quality, and finds a ready market at Youngstown and Columbiana. A vein of fire clay lies directly under this coal. About four feet of this fire clay is being mined, and is ground at their plant, and shipped to different points, where it is used at furnaces and rolling mills. The mine was practically abandoned for the first part of the year on account of the coal trade. On my last visit I found sixteen miners and two day hands employed.

FAIRVIEW NO. 2.

This mine is located at Washingtonville, Ohio, on the Erie R. R. Operated by the Ohio Coal & Clay Co., Cleveland, Ohio. H. D. Hileman, superintendent, Washingtonville, Ohio. Daniel McGrath, mine foreman, Leetonia, O. This is a slope opening about 300 feet, penetrating the No. 3 seam of coal, which is from two and one-half to three feet in thickness. A fan is used as a means of ventilation. On my last visit seventy-two miners and thirteen day hands were employed. The mine was usually found in fair condition, taking into consideration the system used in mining the coal. The coal is shot from the solid, no mining being done, and it is nothing out of the ordinary to go into this mine in the morning, and find doors along the entries blown to pieces from shots fired the previous evening. This makes it almost impossible to have the necessary ventilation under this present system of mining.

MCKINLEY SHAFT.

Located at Bergholz, Ohio, on the main line of the P., F. W. & C. R. R. Owned and operated by the McKinley Coal Company, Salem, Ohio. Wm. H. Dunn, superintendent, Salem, Ohio; Jno. Roebush, mine foreman. This is a shaft opening about sixty feet deep to the No. 5 coal, which varies in thickness from three to four feet. A fan is used as a ventilating medium. About forty-five miners and eleven day hands are employed. The coal is of an excellent quality, and takes readily in the market for steam and domestic purposes.

SMALL COAL MINES IN MAHONING COUNTY.

Name of Mine.	Name of Owner or Operator.	Name and P. O. Address of Superintendent.	No. of Miners.	No. of Day Hands.	Kind of Opening.	Mode of Ventilation.	No. of Seams.	Thickness of Vein.	Plan of Working Mine.	Kind of Haulage.
McDonald	McDonald Bros.	J. McDonald, N. Lima, O.	6	2	Shaft ...	Steam exhaust	3 A.	2' 4"	Single	Mule.
Howell	W. Allison	Wm. Allison, Salem, O.	9	2	Slope ...	Fan	3	2' 8"	Single	Rope.
Greenamyer	Zimmerman & Orr. ...	T. Zimmerman, Salem, O.	9	3	Shaft ...	Fan	3	3	Single	Mule.
Barber	G. A. Barber	G. Barber, Beloit, Ohio..	5	2	Shaft ...	Furnace	5	3	Single	Mule.

TRUMBULL COUNTY COAL MINES.

WITCH HAZEL.

This mine is located ten miles northeast of Youngstown, Ohio, on the L. S. & M. S. R. R. Owned and operated by the Witch Hazel Coal Co. Jno. Good, superintendent, and mine boss, Coalburg, Ohio. This mine has been in operation almost fifty years, but will be worked out and abandoned during the year, the solid coal being all exhausted. The mine was worked on the single entry plan, with fan ventilation.

LOWELLVILLE.

This mine is located at Lowellville, Ohio, on the P. & L. E. R. R. Owned by the Lowellville Coal Co. Thos. H. Williams, superintendent and mine boss, Youngstown, Ohio. Is a shaft opening to the No. 1 seam of block coal. A furnace is used as a means of ventilation. About fifteen miners and four day hands are employed. This is a new mine just being opened, and the coal is said to be of a superior quality. The mine is worked on the single entry plan.

TUSCARAWAS COUNTY COAL MINES.

SOMERS NO. 1 OR THOMPSONS RUN (WEST).

This mine is located three miles south of Sherodsville, Ohio, on a branch of the W. & L. E. R. R. Owned by the Somers Mining Co., Cleveland, Ohio. Wm. Maloney, superintendent, Sherodsville, Ohio. Joe Breehl, mine foreman, Sherodsville, Ohio. Is a drift opening to the No. 7 seam of coal, which is about five feet in thickness. A fan is used for ventilating medium. About one hundred and seventy-five miners and thirty-five day hands are employed. This mine has been in operation for a number of years and will possibly be worked out within the next twelve months. The mine is worked on the double entry system, and was usually found in fair condition.

SOMERS NO. 1 OR THOMPSONS RUN (EAST).

Location of this mine is the same as that of Thompsons Run (West) and is owned by the same Company, and under the same management, but was worked out and abandoned during the year.

MINES VISITED IN THE FOURTH DISTRICT.

BELMONT COUNTY COAL MINES.

BARTON.

This mine is located at Barton, Ohio, and owned by the Y. & O. Coal Co., of Cleveland, Ohio. W. A. Williams, superintendent, and H. S. Kirkpatrick is mine foreman. An inspection of this mine was made in company with Chief Inspector Harrison, Attorney General Ellis and Assistant Attorney Miller, and Mine Inspector McGough. The inspection was made to show the new and improved methods of mining and producing coal compared with what it was 20 years ago when the present mining laws were enacted, and in view of having the laws changed to suit the conditions as they exist today.

LANSING NO. 4.

This mine is located close to Barton, Ohio, on the C. L. & W. R. R. Is owned by the Lorain Coal & Dock Company, Cleveland, Ohio. J. W. Johnson, superintendent, Bridgeport, Ohio; Wm. Slater, mine foreman. This mine was visited and inspected by the same parties who visited the Barton mine for the same purpose and with the same intent in view.

SEVENTH DISTRICT.

W. H. MILLER.

MEDINA, STARK, SUMMIT, WAYNE, HOLMES AND PORTAGE
COUNTIES.

(379)

HON. GEO. HARRISON, *Chief Inspector of Mines, Columbus, Ohio*

DEAR SIR:—In compliance with the custom of the Mining Department, I herewith submit to you my annual report of the visits made, scales tested, and improvements in my district during the time covered by this report, which is from January 1st, 1905, to December 31st, 1905, inclusive. This district is comprised of the counties of Holmes, Medina, Ottawa, Portage, Stark, Summit and Wayne. With but few exceptions the mines were found in good condition.

I have made 264 visits to the mines in this district during the time covered by this report. On Oct. 24th, I was called into Jefferson County by Chief Mine Inspector and J. P. Davis, Inspector of the Sixth District, for the purpose of making an inspection of the Zerbe mine, located near Amsterdam, O., which had been reported to be in a deplorable condition. In company with the Mine Committee, we made a thorough inspection and found the mine in first class condition. While in this county we visited the Amsterdam and Rush Run Nos. 2 and 3 mines, and found them in good condition.

On December 11th, I received notice from you to go to the Fairfield No. 2 mine, located in Columbiana County, for the purpose of testing the scales, where much dissatisfaction prevailed among the miners. In company with the Mine Committee and check weighman, we made a thorough test and found the scales weighing accurately.

Much to be regretted, twelve (12) fatal accidents occurred in and around the mines of this district during the year.

April 26th, I was notified by the Mining Department to go to the Barn Hill mine in Tuscarawas County to investigate the fatal accident of Charles Burkhart.

During the year I have tested fifty-eight (58) pairs of scales. Out of this number one (1) pair was found incorrect. Eight (8) new mines have been opened and four (4) abandoned.

The principal improvements are as follows: Second openings, seventeen (17); fans, four (4); furnaces, two (2); stairways, eleven (11); speaking tubes, two (2), and safety catches, two (2); making a total of thirty-eight (38).

The work of this district would not average half time. No strikes or lockouts of any importance occurred.

Some local creeps occurred during the year, caused in various ways, but leaving no serious results.

In conclusion, will say that the entire year of my official relations has been of a pleasant character, and I wish to extend my thanks to you for advice given and many courtesies shown.

Respectfully submitted,

W. H. MILLER, R. R. No. 1, Massillon, O.,
Inspector Seventh District.

MEDINA COUNTY.

WAGONER.

Located near Wadsworth, O., on the Erie R. R. Operated by the Card & Prosser Coal Co., Cleveland, O. O. V. Dibble, Wadsworth, O., is superintendent, and A. Davis, same place, mine boss. Slope opening, 361 ft. long, entering the No. 1 seam of coal, 4 ft. thick. Exhaust steam is used as ventilating medium; 35 miners and 11 day men employed. Four inspections made. March 20th, found a squeeze had occurred on the main entry, which gave the Company considerable trouble in timbering and taking up bottom. Eventually it settled on the gcb, and gave no further trouble. May 15th, found ventilation deficient; ordered three breakthroughs cut. June 22nd, called to investigate fatal accident of Pleasant Harris. August 25th, found former orders complied with.

JAMES NO. 4.

Situated near Wadsworth, O., and is a domestic mine operated by James & Paynter Coal Co., Wadsworth, O. Thos. James, Wadsworth, O., has full charge. Slope opening, 180 feet in length to the No. 1 seam of coal, which is from 4 to 5 feet thick. Exhaust steam is used as ventilating medium; 10 miners and 3 day men employed. Four visits made. March 15th and May 17th, mine in fair condition. August 2nd, ordered second opening. October 19th, second opening completed, mine in good condition.

HILLIARD.

Located near Wadsworth, O., on the Erie R. R., and is operated by the Card & Prosser Coal Co., Cleveland, O. O. V. Dibble, Wadsworth, O., is superintendent, and A. Davis, same place, mine boss. Shaft opening, 93 feet deep entering the No. 1 seam of coal, which is 4 ft. thick. Exhaust steam is ventilating power; 40 miners and 8 day men employed. March 15th, mine in fair condition. May 16th, ordered second opening. August 2nd, second opening completed and stairway built. October 18th, ordered brattice at bottom of shaft repaired.

WHALEN NO. 2.

Located near Wadsworth, O., on the Erie R. R. Operated by the Card & Prosser Coal Co., Cleveland, O. O. V. Dibble, Wadsworth, O., is superintendent; Peter Keller, Wadsworth, O., mine foreman. Slope opening 300 feet in length, entering the No. 1 seam of coal, which is 4 ft. thick. Exhaust steam is the ventilating medium. Twenty-six miners and 10 day men employed. Two inspections made, March 14th and May 16th; each visit mine was found in good condition. Abandoned in July.

CHIPPEWA.

Located near Wadsworth, O., on the Erie R. R. Operated by the Ohio Salt Co., Wadsworth, O. S. Evans, Wadsworth, O., is superintendent, and John Evans, same place, mine boss. Slope opening, 175 ft. in length, entering the No. 1 seam of coal, which is from $3\frac{1}{2}$ to $4\frac{1}{2}$ ft. thick; ventilated by furnace; 32 miners and 8 day men employed. Four visits made. March 14th, found ventilation deficient in No. 4 South Entry. As the haulage was through abandoned working, did not consider it safe. Ordered an air shaft put down in the solid coal. May 17th, found second opening completed which had been ordered on former visit, and mine in fair condition. Aug. 3rd, mine in good condition. Oct. 17th, ordered three breakthroughs cut.

HAMILTON.

Located near Wadsworth, O., and is a domestic mine operated by the Hamilton Coal Co., Wadsworth, O. Geo. Hamilton, Wadsworth, O., has full charge. Drift opening to the No. 1 seam of coal, which is from $3\frac{1}{2}$ to 4 ft. thick; ventilated by furnace; employs 10 miners and 2 day men. Made inspection Oct. 19th and found mine in good condition.

KLONDIKE.

Situated near Wadsworth, O., on the Erie R. R., and operated by the Hutchinson Coal Co., Wadsworth, O. John Hutchinson, Wadsworth, O., is superintendent, and John McLaney, same place, mine foreman. Slope opening, 150 ft. in length into the No. 1 seam of coal, which is $3\frac{1}{2}$ to 4 ft. thick. Furnace ventilation, and employs 8 miners and 3 day men. One inspection made, Oct. 19th, and mine found in good condition.

RICHARD.

Located near Wadsworth, O. Domestic mine, operated by F. T. Richard, Wadsworth, O., who has full charge. Shaft opening, 40 feet in depth, penetrating the No. 1 seam of coal, $3\frac{1}{2}$ ft. thick. Exhaust steam is ventilating power; 7 miners and 2 day men employed. One inspection made, Oct. 19th, and mine found in good condition; ordered second opening.

OTTAWA COUNTY.

NORTH MINE.

Located near Gypsum, O., on the L. S. & M. S. R. R. Operated by the United States Gypsum Co., Chicago, Ill. Chas. Miller, Gypsum, O.,

has full charge. Drift opening, penetrating the Gypsum seam, which is from 5 to 6 ft. thick; has natural ventilation, and employs 28 miners and 4 day men. Three inspections made. February 7th and 8th, was called to investigate fatal accident of Joseph Sabo; made inspection of mine and found it in fair condition. Sept. 19th and Dec. 13th, mine in good condition.

SOUTH EAST.

Located near Gypsum, O., and operated by same Company as North mine. Chas. Miller, Gypsum, O., has full charge. Drift opening to the Gypsum seam, from 4½ to 6 ft. thick; has natural ventilation and employs 18 miners and 3 day men. Three inspections made; June 6th, Sept. 19th, and Dec. 13th. On each visit mine was found in good condition.

LEA.

Located near Gypsum, O., and operated by same company as above mines. Shaft, 50 feet in depth, penetrating the Gypsum seam, which is 6 feet thick. Fan is used as ventilating power; 31 miners and 5 day men employed. Three inspections made. June 6th, mine in good condition. Sept. 19th, found a 12-foot fan installed, which gives abundant ventilation. Dec. 13th, found they had abandoned the lower seam of Gypsum, which was of a poor quality. Mine in good condition.

CONSUMERS NO. 1.

Located near Port Clinton, O., on the L. S. & M. S. R. R., and is operated by the Consumers Gypsum Co., Port Clinton, O. E. J. Hughes, Port Clinton, O., has full charge. Shaft opening, 35 feet in depth, penetrating the gypsum seam, which is 4½ to 5½ feet thick. Exhaust steam is used as ventilating power; 30 miners and 7 day men are employed. Three inspections made. June 6th, ordered gates on shaft, also cover on cage. Sept. 20th, found former orders complied with. Dec. 14th, found Nos. 1 and 2 in communication with each other. Mine in good condition.

CONSUMERS NO. 2.

Situated near Port Clinton, O., on the L. S. & M. S. R. R. Operated by same company as No. 1. E. J. Hughes, Port Clinton, O., has full charge. Slope opening, 125 ft. in length, penetrating the gypsum seam, which is 4½ to 5 ft. thick. Exhaust steam is ventilating power; 11 miners and 2 day men employed. Two inspections made. Sept. 20th, found 11 miners engaged in driving entries. Dec. 14th, mine in good condition.

PORT CLINTON.

Remained suspended throughout the year.

PORTAGE COUNTY.

HUTSON NO. 4.

Located near Deerfield, Ohio, on the L. E., A. & W. R. R. Operated by the Hutson Coal Co., Cleveland, O. T. J. Williams, Lloyd, O., is superintendent, and John P. Williams, Deerfield, O., mine foreman. Shaft opening, 214 feet in depth, penetrating the No. 1 or Palmyra block seam of coal, which is from $3\frac{1}{2}$ to 4 feet thick and is of excellent quality. Fan ventilation; 76 miners and 34 day men employed. Four inspections made. Jan. 17th and 18th and March 23rd, mine found in good condition. June 13th, found quite an improvement by the main haulage being retimbered. Oct. 3rd, found General Electric mining machine being installed.

HUTSON NO. 7.

Situated near Lloyd, O., and operated by same company as Hutson No. 4. T. J. Williams, Lloyd, O., is superintendent, and O. R. Lewis, Lloyd, O., mine foreman. Shaft, 165 ft. deep to the No. 1 seam of coal, **$3\frac{1}{2}$ ft. thick**; has fan ventilation; 41 miners and 16 day hands employed. **Four inspections** made. Jan. 19th and March 22d, mine in fair condition. **June 14th**, ordered second opening, and Oct. 4th found same completed, **stairway built**, and mine in good condition.

MULLINS.

Located near Deerfield, O., on the L. E., A. & W. R. R. Operated by the South Palmyra Coal Co., Cleveland, O. J. S. Davis, Deerfield, O., has full charge. Shaft opening, 225 feet deep, penetrating the No. 1 seam, or Palmyra block, which is $3\frac{1}{2}$ feet thick. Fan is used as ventilating power; 22 pick miners, 20 loaders, 6 cutters and 20 day men employed. Four inspections made. Jan. 19th, mine in fair condition. March 22nd, found fan erected and stairway built. June 14th and Oct. 4th, ordered new ropes put on shaft, which was complied with.

STARK COUNTY.

MINGLEWOOD NO. 1.

Located near North Lawrence, Ohio, on the P., Ft. W. & C. R. R. and W. & L. E. R. R. Operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner, Massillon, O., superintendent, and Wm. Moffett, North Lawrence, O., mine foreman. Shaft opening, 208 ft.

deep, penetrating the No. 1 seam of coal, which is from 4 to 5 ft. thick; has fan ventilation and employs 40 miners and 15 day men. Three inspections made, March 31st, June 23rd, and Sept. 1st. On each visit mine found in good condition, for pillar work.

MINGLEWOOD NO. 2.

Situated near North Lawrence, Ohio, on same railroad and operated by same company as Minglewood No. 1. Wm. Baumgardner, Massillon, O., superintendent, and Jos. Ellis, North Lawrence, O., mine foreman. Shaft, 200 ft. in depth, penetrating the No. 1 seam of coal, which is 4½ ft. thick. Ventilated by fan; 43 miners and 26 day men employed. Two inspections made. August 28th, found mine in operation after a suspension of nearly 7 months. Dec. 5th, mine in fair condition for pillar work.

NEW GREENVILLE NO. 3.

Located near East Greenville, O., on the W. & L. E. R. R. Operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner, Massillon, O., is superintendent, and Wm. Kutz, Massillon, O., mine foreman. Shaft 260 ft. deep, entering the No. 1 seam, which is 5 feet thick. Fan ventilation; 41 pick miners, 43 loaders, 14 cutters and 34 day men employed. Visited five times. Feb. 14th, found ventilation deficient on South side, caused by brattice in the tunnel leaking, which was ordered repaired. June 26th, visited mine, which had a squeeze on that endangered the second opening; a third opening is inside of the 1,200 ft. tunnel, which renders it safe. August 8th, mine in operation after suspension of nearly 5 months. November 2nd and 8th, found ventilation deficient; suggested to manager that fan be placed on third opening, which would give good results. Dec. 28th, visited in company with Chief Mine Inspector George Harrison.

WARWICK NO. 5.

Located three miles south of East Greenville, O., on the W. & L. E. R. R. Operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner, superintendent, and Daniel Heinbach, R. R. No. 2, Massillon, O., mine foreman. Shaft opening, 207 feet in depth to the No. 1 seam of coal, which is 4 feet thick; fan ventilation, and employs 41 miners and 20 day men. Four visits made. January 31st, former orders complied with; found air shaft had considerable ice in it, which was ordered taken out. June 20th, found mine suspended indefinitely. July 31st, found 24 men engaged in driving entries; ordered two break-throughs closed in No. 2 entry. Nov. 14th, former orders complied with and mine in fair condition.

CENTRAL NO. 7.

Located near West Brookfield, O., on the W. & L. E. R. R. Operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner, Massillon, O., superintendent, and Patrick Harney, Massillon, O., mine foreman. Shaft opening, 262 feet deep, entering the No. 1 seam of coal, which is 5 feet thick; has fan ventilation; 32 miners and 16 day men employed. Two inspections made, February 27th and May 5th, and found mine in good condition for pillar work.

STANWOOD NO. 8.

Situated near Stanwood, Ohio, on the B. & O. and W. & L. E. R. R. Operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner, Massillon, O., is superintendent, and Wm. Pollock, North Lawrence, O., mine foreman. Shaft, 200 ft. deep, penetrating the No. 1 seam of Massillon coal, which is from 4 to 6 feet thick. Ventilated by fan; 53 miners and 20 day men employed. Five visits made. March 7th, former orders complied with; found ventilation deficient on North side in No. 4 entry. Ordered two breakthroughs cut and brattice put up. May 2nd, former orders complied with; found six men on the South side working in advance of the breakthrough limit; stopped them until breakthrough was cut. Tested safety catches and found them in good working order. July 17th, former orders complied with. Sept. 29th and Dec. 20th, mine in fair condition for pillar work.

NORTH MASSILLON NO. 9.

Located near Jackson Center, O., on the B. & O. R. R. and P., Ft. W. & C. R. R. Operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner, Massillon, O., is superintendent, and J. Hodgson, Canal Fulton, O., mine foreman. Shaft opening, 150 feet deep, penetrating the No. 1 or Massillon seam of coal, which is 4 ft. thick; fan ventilation, and 78 miners, 32 day men employed. Five visits made. Feb. 16th and 17th, found ventilation deficient owing to the operation of the fan being slow; ordered it speeded to the limit. On visit May 11th and 12th, noticed that the guides in the shaft were badly worn; suggested to the general manager, Mr. Hornickel, that they be replaced with new ones. He has agreed to comply with my suggestion. Tested safety catches and found them in bad shape; had them repaired, made test of them the following day, and found them in good working order. May 13th, called to investigate accident of Jos. Hodgson. July 20th and 21st, former orders complied with. Nov. 9th, mine in good condition.

FOX NO. 12.

Located near Navarre, Ohio, on the W. & L. E. R. R. Operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner, Mas-

Massillon, Ohio, is superintendent, and Wm. Baumgardner, Jr., Massillon, O., mine foreman. Shaft, 200 feet deep, entering the No. 1 seam of coal, which is 5 feet thick; has fan ventilation; 57 pick miners, 30 loaders, 6 cutters and 31 day men employed. Four visits made. February 3rd, found Wm. Baumgardner, Jr., in charge. The mine foreman who preceded him had neglected the doors and brattices; ordered them put in order, which he agreed to do as soon as possible. April 5th, former orders complied with. June 29th, found Nos. 3 and 4 entries on the south side in advance of the air. Stopped them until breakthroughs were cut; also ordered a door put up. Notified the mine foreman he must observe the breakthrough limit. September 12th, visited and found idle; made inspection and found former orders complied with.

GEISE NO. 13.

Remained suspended throughout the year.

NO. 17.

Located near West Brookfield, Ohio, on the W. & L. E. R. R. Operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner, Massillon, O., is superintendent, and J. E. English, Massillon, O., mine foreman. Shaft opening, 225 ft. deep, entering the No. 1 seam of Massillon coal, which is 5 feet thick. Fan ventilation; employs 25 miners and 15 day men. Visited five times. April 25th, found 12 men engaged in driving entries. July 3rd, mine in good condition. July 29th, called to investigate fatal accident of John Watts. September 22nd, made inspection and found mine in good condition. December 28th, visited in company with Chief Inspector George Harrison.

NO. 18.

Remained suspended throughout the year.

NO. 19.

Located near Sippo, O., on the W. & L. E. R. R. and P., Ft. W. & C. R. R. Operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner, Massillon, O., superintendent, and Geo. Swier, Massillon, O., mine foreman. Shaft, 157 feet deep, entering the No. 1 seam of Massillon coal, which is 5 feet thick. Exhaust steam is used as ventilating medium. Twenty-eight miners and 16 day men employed. June 21st, found 12 men engaged in driving entries toward the second opening, which is being sunk as fast as possible. Oct. 10th, found second opening completed and mine in good condition. Dec. 28th, made inspection of the mine in company with Chief Mine Inspector George Harrison.

ELM RUN NO. 1.

Located south of Massillon, O., on the W. & L. E. R. R. Operated by the Somers Coal Co., Cleveland, O. J. L. Green, Massillon, O., is superintendent, and Geo. Bullock, Massillon, O., mine foreman. Shaft, 190 feet deep, penetrating the No. 1 seam of coal, which is from $3\frac{1}{2}$ to 4 feet thick. Fan ventilation. Employs 39 miners and 14 day men. Four visits made. Feb. 6th, June 27th, and Aug. 14th, mine found in good condition. Dec. 4th, found several brattices that needed to be replaced by new ones, which mine foreman has agreed to do.

ELM RUN NO. 2.

Located near West Brookfield, O., on same railroad, and operated by same Company as Elm Run No. 1. J. L. Green, Massillon, O., is superintendent, and M. Davis, Massillon, O., mine foreman. Shaft opening, 116 feet deep, entering the No. 1 seam of coal, which is four feet thick. Fan ventilation; 28 miners and 10 day men employed. Four visits made. February 13th, May 19th, and July 18th, mine found in good condition. October 20th, ordered two breakthroughs cut. Aside from this, the mine was in compliance with the law.

ELM RUN NO. 3.

Located near Elton, Ohio, on the W. & L. E. R. R. Operated by the same Company as No. 1 and No. 2 mines. Lewis Brenkamp, R. R. No. 2, Navarre, Ohio, has full charge. Shaft, 156 feet deep, entering the No. 1 seam of coal, which is from 4 to 5 feet thick. Fan ventilation; 48 miners and 18 day men employed. Five visits made. January 26th, former orders complied with. Found the face entry being driven in advance of the air; stopped the miners, told them to commence a breakthrough. Aside from this, the mine was in good condition. April 14th, found mine idle. It was the intention of the Company to work, but the water being so high, no inspection was made. June 20th, September 13th and December 6th, found pillars being removed. Mine was in good condition for pillar work.

ELM RUN NO. 5.

Remained suspended throughout the year.

ELM RUN NO. 6.

Located near East Greenville, Ohio, on the W. & L. E. R. R., and operated by same Company as Nos. 1, 2, 3 and 5. J. L. Green, Massillon, Ohio, is superintendent, and O. H. Williams, Canal Fulton, O., mine foreman. Shaft, 257 feet deep, penetrating the No. 1 seam of coal, which is 4 ft. thick. Fan ventilation; 40 miners and 14 day men employed. July

27th, visited and found idle. Sept. 27th, found mine in operation after a suspension of nearly six months. A force of day men were cleaning up, taking down loose stone, and retimbering so far as they had gone. Conditions were fair. December 18th, found the speaking tube in the shaft out of order; ordered it repaired; also two breakthroughs cut. Otherwise, mine is in good condition.

BRAMLEY.

Located near North Lawrence, Ohio, on the P., Ft. W. & C. R. R. Operated by the Cleveland-Massillon Coal Co., Cleveland, O. J. P. Jones, North Lawrence, Ohio, has full charge. Slope opening, 330 feet in length, entering the No. 1 seam of coal, which is about $3\frac{1}{2}$ feet thick. Ventilated by fan, and employs 62 miners and 16 day men. Two inspections made. March 8th, found ventilation deficient on the East side of the mine, caused by stoppings being neglected; ordered them repaired. Nov. 10th, mine has been suspended about six months. On my visit, found it in operation. It is the custom of this Company to let the mine fill with water when suspended. As gob was used for stoppings, the water would settle it, which caused the ventilation to be deficient. The gob system is a poor method of closing breakthroughs.

CRESCENT.

Located near Paris, Ohio, on the L. E. A. & W. R. R. Operated by the Crescent Coal Co., Alliance, O. Hugh B. Evans, Paris, O., has entire supervision. Slope opening, 215 feet in length, penetrating the No. 5 seam of coal, which is 3 feet thick. Fan ventilation; 35 miners and 8 day men employed. Four visits made. January 16th, found ventilation deficient, caused by the air course being blocked with gob; ordered it removed, which Mr. Evans agreed to do. January 27th, received notice from the Mine Committee that Mr. Evans had not complied with the orders. On my arrival found this to be true. I informed the Committee it would be necessary to close the mine until my orders were carried out. They were inclined to the belief that if the mine boss was given 3 or 4 days former orders would be complied with and the time was extended, with this understanding. March 21st, mine suspended indefinitely. Oct. 2nd, found the mine in operation after a suspension of nearly 7 months. It will be some time before the full force of miners can be put to work, as there is considerable cleaning up to do. As far as they have gone, things are in good shape.

SOUTH MASSILLON.

Situated near Navarre, Ohio, on the W. & L. E. R. R. Operated by the South Massillon Coal Co., Massillon, O. Henry Leahy, Massillon, Ohio, has entire supervision. Shaft opening, 160 feet deep, entering

the No. 1 seam of coal, which is 5 feet thick; has fan ventilation; 12 pick miners, 22 loaders, 6 cutters, and 20 day men employed. Four inspections made, March 3rd, June 2nd, August 7th, and November 13th. On each occasion mine was found in good condition.

POCOCK NO. 3.

Located near East Greenville, Ohio, on the B. & O. and W. & L. E. R. R. Operated by the Pocock Coal Co., Massillon, O. C. A. Kouth, Massillon, Ohio, has full charge. Shaft opening, 245 feet deep, penetrating the No. 1 seam of coal, which is 5 feet thick. Fan ventilation, and employs 35 pick miners, 44 loaders, 16 cutters, and 33 day men. February 15th, April 28th, and July 14th, mine in good condition. December 7th, called to investigate fatal accident of Willard Kouth. December 28th, visited in company with Chief Mine Inspector George Harrison.

CARR.

Located near Alliance, Ohio, and is a domestic mine, A. C. Dustman, Alliance, Ohio, being lessee, who has full charge. Shaft opening, 50 feet deep, entering the No. 6 seam of coal, which is 3 feet thick. Furnace ventilation, and employs 8 miners, 3 day men. Two visits made. June 12th, mine in fair condition. October 5th, ventilation deficient, caused by the furnace not being in use. Ordered furnace kept in use while mine was working.

DAVIS NO. 2.

Located near Alliance, O., and is a domestic mine operated by Eli Bros., Alliance, O. Ed. Eli, Alliance, O., has full charge. Shaft opening, 35 feet in depth to the No. 6 seam of coal, which is 3 ft. thick. Furnace ventilation; 9 miners and 2 day men employed. Two visits made. June 12th, noticed some of the timbers in the shaft needed replacing by new ones; ordered this done. Oct. 5th, found former orders complied with and mine in fair condition.

EAST MASSILLON.

Remained suspended throughout the year.

MCGINTY.

Situated three miles east of Louisville, Ohio, on the P., Ft. W. R. R. Operated by Broombach & Keim Co., Louisville, O. Edw. Jones, Louisville, O., has full charge. Drift opening entering the No. 6 seam of coal, 3 feet thick; ventilated by furnace; 32 miners and 12 day men employed. Four visits made. Feb. 23rd, mine in fair condition. May 9th, ordered furnace rebuilt. August 30th, former orders complied with. Dec. 22nd, mine found in fair condition.

C. H. B.

Located near Canton, O., on the W. & L. E. R. R. Operated by the Canton Hollow Block Co., Canton, Ohio. Wm. Brown, Canton O., has full charge. Drift opening into the No. 4 seam of coal, which is $4\frac{1}{2}$ ft. thick. Ventilated by furnace; 23 miners and 4 day men employed. Four visits made during the year. January 23rd, learned from the miners that the furnace was being neglected at times, which caused the ventilation to be deficient. Notified Mr. Brown that furnace must be kept in use when mine was in operation. April 19th, July 10th, and December 1st, mine in fair condition.

HESS.

Located near Navarre, O., on the Ohio Canal, and operated by the Hess Coal Co., Massillon, O. Fred Hess, Massillon, O., has full charge. Shaft opening, 42 feet to the No. 1 seam of coal, which is $3\frac{1}{2}$ feet thick. Exhaust steam is used as a ventilating power; 11 miners and 2 day men employed. Two visits made. June 9th, ordered second opening. November 15th, former orders complied with and mine in fair condition.

SIPPO.

Located near Newman, O., on the P., Ft. W. & C. R. R. Operated by the Worthoust Co., Massillon, O. John Yast, Massillon, O., has full charge. This is a clay drift, 5 feet in thickness. Ventilated by furnace; 10 miners and 2 day men employed. Three inspections made, June 15th, Sept. 25th and December 26th. On each inspection mine was found in good order.

HIPPI.

Located near Newman, O., on the P., Ft. W. & C. R. R. Operated by the Massillon Stone & Fire Brick Co., Massillon, O. John Wynn, Massillon, O., has entire supervision. This is a clay drift, about $5\frac{1}{2}$ ft. thick. Has furnace ventilation. Four inspections made, February 24th, June 15th, September 25th and December 26th. On each visit mine was found in excellent condition.

CAMP.

Located near Greentown, O., on the B. & O. R. R. Operated by the H. B. Camp Co., Akron, O. H. B. Camp, Akron, O., is superintendent, and N. Weaver, Inland, O., mine boss. Drift opening into the No. 4 seam of coal, 5 feet thick, including a strata of stone in the center. Natural ventilation; 10 miners and 2 day men employed. Three visits made, Feb. 2nd, found No. 2 entry in advance of the air, which was ordered stopped until breakthrough was cut; also ordered a door put up. June 1st, former orders complied with. I was informed by the miners they had experienced trouble in getting timber. The superintendent was notified

that unless the miners were supplied with timber it would be necessary to close the mine. He assured me there would be no further trouble about timber. Septembr 26th, former orders complied with. Mine in fair condition for pillar work.

SUMMIT HILL.

Located near Greentown, O., on the B. & O. R. R. Operated by L. E. Smith, Greentown, O., who is superintendent, and Peter Dearoff, Greentown, O., mine foreman. Drift opening to the No. 4 seam of coal, which is 5 feet thick, including a strata of stone in the center. Ventilated by furnace; 13 miners and 4 day men employed. Three visits made. February 2nd, mine in fair condition. June 1st, found ventilation deficient, caused by the air shaft caving in; ordered it repaired, the stack put up, and furnace put in use by Wednesday, June 7th, and unless this order was complied with I would close the mine. September 26th, former orders complied with and mine in good condition.

INDIAN RUN.

Located 4 miles south of Osnaburg, O., on the W. & L. E. R. R. Operated by the Steiner Coal Co., Canton, O. David Carl, Osnaburg, O., has full charge. Drift opening into the No. 6 seam, 3 feet thick. Furnace ventilation; employs 35 miners and 9 day men. Four visits made. January 25th, found ventilation deficient in No. 3 entry; ordered a door put up and a breakthrough enlarged. March 17th, called to investigate fatal accident of Domino Guella. April 21st, visited and found mine suspended indefinitely. November 23rd, found mine in operation after a suspension of nearly 7 months. Former orders were complied with and mine in fair condition.

N. F. P. NO. 1.

Located near Osnaburg, O., on the W. & L. E. R. R. Operated by the National Fire Proofing Co., Canton, O. John Murley, Canton, O., is superintendent, and Albert Hale, Osnaburg, O., mine foreman. Drift opening, No. 6 seam, 3 feet thick; ventilated by furnace. Employs 22 miners and 8 day men. Inspected four times. January 24th, found ventilation deficient in No. 2 entry; ordered two breakthroughs cut, and check door put up. April 21st, former orders complied with. July 13th and Novembr 20th, mine in good condition.

N. F. P. NO. 2.

Located near Waynesburg, O., on the P., Ft. W. & C. R. R. Operated by same company as No. 1. D. S. Griffith, Waynesburg, O., has entire charge. Slope, 158 ft. long, entering the No. 6 seam of coal, which is 3 feet thick. Fan ventilation; 13 miners and 6 day men employed. Three inspections made. April 20th, noticed the rope on the slope was

in bad condition; ordered it replaced by a new one. July 11th, former order complied with. November 22nd, ventilation in No. 3 entry deficient; ordered a door put up. Aside from this, conditions were fair.

PLEASANT VALLEY.

Remained suspended throughout the year.

CHESTNUT HILL.

Suspended indefinitely.

WHITACRE NO. 3.

Located near Waynesburg, O., on the P., Ft. W. & C. R. R. Operated by the Whitacre Fire Proofing Co., Waynesburg, O. J. H. Milner, Waynesburg, O., has full charge. Drift, No. 6 seam, 3 feet thick; ventilated by furnace, and 5 miners and 1 day man employed. One inspection made, November 21st; mine in good condition.

WHITACRE NO. 4.

Located near Waynesburg, O., on same railroad and operated by same Company as No. 3. J. H. Milner, Waynesburg, O., has full charge. Drift opening, into the clay seam, which is 6 feet thick; has natural ventilation; 6 miners and one day hand employed. One visit made, November 21st; mine in good condition.

WHITACRE NO. 5.

Located near Waynesburg, O., on same railroad, operated by same Company, and under same supervision as Nos. 3 and 4. Drift opening, entering the No. 6 seam of coal and clay, which is 6 feet thick. Has furnace ventilation; 9 miners and 4 day men employed. Visited three times. April 20th, mine in good condition. July 11th, ventilation deficient, caused by furnace not being kept in use; notified Mr. Milner that furnace must be kept in use while mine was working. Nov. 21, former orders complied with. Mine in fair condition.

WHITACRE NO. 6.

Located near No. 5, on same railroad, operated by same company, and under the same supervision as Nos. 3, 4 and 5. Drift opening, entering the No. 6 seam of coal, 3 feet thick, clay 6 feet thick. Furnace ventilation, and employs 12 miners and 3 day men. Visited three times, April 20th, July 11th, and November 21st. On each occasion mine was found in good condition.

LAHMILLER NOS. 1 AND 2.

Located near Waco, Ohio. Domestic mines, operated by J. C. Lahmiller, Waco, O., who has entire charge. Drift openings to the No. 6 seam of coal, which is 3 feet thick. Furnace ventilation; 8 miners and 2 day men employed in each mine. Two visits made, July 28th and December 1st. The mines were found in good condition.

SUNNYSIDE.

Located near North Industry, O., and is a domestic mine owned by John Plaskett, North Industry, O., who has full charge. Drift to the No. 6 seam of coal, which is 3 feet thick. Ventilated by furnace and employs 7 miners and 1 day man. One inspection made, on August 9th. Former orders complied with and mine in fair condition.

NORTH BERLIN.

Located near North Berlin, O. Domestic mine, operated by August Smith, North Berlin, O. F. Smith, North Berlin, O., has full charge. Shaft opening, 40 feet deep to the No. 4 seam, which is 5 feet thick, including a strata of stone in the center of the coal. Ventilated by exhaust steam; 13 miners and 3 day men employed. Two visits made. March 10th, mine in good condition. Sept. 26th, found main air course blocked with gob. Ordered it cleaned out; this done, ventilation will be improved.

BUCKEYE.

Located near Canal Fulton, O. Domestic mine, operated by the Buckeye Coal Co., Canal Fulton, O. Jos. Griffith, Canal Fulton, has entire charge. Slope opening, 250 ft. in length, entering the No. 1 or Massillon seam of coal, 5 feet thick; has fan ventilation, and employs 7 miners and 1 day hand. One inspection made, July 25th. Mine found in good condition.

NEWMANS CREEK.

Located two miles west of Massillon, O., on the P., Ft. W. & C. R. R. Operated by the Newmans Creek Coal Co., Massillon, O. F. J. Kellar, Massillon, O., has full charge. Slope, 250 feet in length. Ventilated by fan; 30 miners and 12 day men employed. Six visits made. February 24th, March 9th, and June 6th, mine found in fair condition. August 31st, found three rooms were being worked toward an abandoned mine, which was full of water. Four test holes were being drilled in each room, 10 feet in advance, using all care possible. October 9th, called to investigate fatal accident of Godfrey Kemp. December 15th, the principal work of this mine is pillars. Mine is in fair condition.

HARING-WILSON.

Located near Pigeon Run, O., on the W. & L. E. R. R. Operated by the Haring-Wilson Coal Co., Massillon, O. Wm. Penman, Massillon, Ohio, has entire supervision. Shaft opening, 116 feet deep, penetrating the No. 1 seam of coal, which is 5 feet thick. Exhaust steam is used as a ventilating medium. Twelve miners and 6 day men employed. One visit made, November 15th. This is a new mine. On my visit I found 12 men engaged in driving entries.

BOOTH.

Located near Justus, O. Domestic mine, operated by the Booth Coal Co., Navarre, O. Geo. Ray, Navarre, O., has full charge. Drift opening into the No. 3 seam of coal, which is 3 feet thick; has furnace ventilation and employs 6 miners and 1 day man. Two visits made, June 9th and November 15th, and mine found in good condition.

SUMMIT COUNTY.

TURKEY FOOT.

Situated near Manchester, O., on the C., A. & C. R. R. Operated by the Brewster Coal Co., Akron, Ohio. John White, Nimisila, O., has full charge. Shaft opening, 200 feet deep, entering the No. 1 seam of coal, which is 4 feet thick; has fan ventilation; 51 miners and 24 day men employed. Five visits made. February 21st, May 1st, and July 7th, mine was found in good condition on each occasion. September 11th, ventilation found deficient in two of the rooms on the South Side; ordered breakthroughs cut. December 27th, former orders complied with. On the South side found No. 2 entry driven 6 yards in excess of the breakthrough limit; stopped it until breakthrough was cut. Aside from this the mine was in fair condition.

BEECHWOOD MASSILLON.

Located near Manchester, O., on the C., A. & C. R. R. Operated by the Beechwood Massillon Coal Co., Cleveland, O. George Graze, Massillon, Ohio, superintendent, and Joseph Burger, Nimisila, O., mine boss. Shaft opening entering the No. 1 seam of Massillon coal, which is from 4½ to 5 feet thick. Has fan ventilation; 76 miners, 20 loaders, 6 cutters and 26 day men employed. Five visits made. February 1st, former orders complied with, air shaft sunk, fan erected and stairway built. April 3rd, June 8th, August 11th, mine in good condition. October 23rd, ordered two breakthroughs cut and door repaired.

GERRARD NO. 1.

Located near Cottage Grove, O., on the B. & O. R. R. Operated by the White Oak Coal Co., Cleveland, O. Thomas Williams, Akron, Ohio, is superintendent, and Wm. C. Jones, Myersville, O., mine boss. Shaft opening, 106 feet deep, entering the No. 1 or Massillon seam of coal, which is from 4 to 5 feet thick. Ventilated by exhaust steam. Forty-five miners and 17 day men employed. Four visits made. January 30th, found second opening completed. April 18th and July 5th, mine in fair condition. October 12th, found Mr. Gorman in charge of the mine. He was very much dissatisfied with the conditions that existed, and was inclined to resign his position owing to the neglected condition of affairs. Mr. Gerrard, who is general manager, was notified that it mattered not who was mine foreman, the mine must be put in lawful condition. Assurances were forthcoming that my orders would be carried out.

HAMETOWN.

Located near Hametown, O. Domestic mine, operated by the Hametown Coal Co., R. R. No. 35, Barberton, O. J. D. Jones, R. R. No. 35, Barberton, O., has full charge. Slope opening, 318 feet in length, entering the No. 1 seam of coal, which is 4 feet thick. Exhaust steam is used as ventilating power; 11 miners and 2 day men employed. Two visits made, August 1st and October 17th. Mine in good condition.

COTTAGE GROVE.

Located near Cottage Grove, Ohio. Domestic mine, operated by the Cottage Grove Coal Co., R. R. No. 24, South Akron, Ohio. E. C. Buetch, R. R. N. 24, South Akron, O., has full charge. Slope opening, 86 feet long, entering the No. 1 seam of coal, which is 4 feet thick. Exhaust steam is used as ventilating power. Eight miners and 2 day men employed. One visit made, October 12th, and mine found in good condition.

WAYNE COUNTY.

DALTON NO. 14.

Located near Dalton, O., on the W. & L. E. R. R. Operated by the Massillon Coal Mining Co., Massillon, O. Wm. Baumgardner, Massillon, Ohio, is superintendent, and John La Viers, Dalton, O., mine foreman. Shaft opening, 125 feet deep, entering the No. 1 seam of coal, which is from 4 to 5 feet thick. Ventilated by exhaust steam. Forty-five miners and 15 day men employed. Five visits made. March 2nd and May 10th, mine in good condition. June 7th, called to investigate death of Wm. Pratt, who was found dead in the mine. July 19th and Oct. 11th, mine found in good condition.

DOYLESTOWN NO. 1.

Remained suspended throughout the year.

PORTER.

Located near Doylestown, O., on the Erie R. R. Operated by the Card & Prosser Coal Co., Cleveland, O. O. V. Dibble, Wadsworth, O., is superintendent, and R. Lee, Doylestown, O., mine foreman. Shaft, 162 feet deep, penetrating the No. 1 seam of coal, 4 feet thick. Ventilated by exhaust steam; 93 miners and 15 day men employed. Seven visits made. February 1st, and March 30th, mine in fair condition. April 10th, visited mine for the purpose of closing it down until a second opening was made. May 31st, found second opening in operation, air shaft completed, stairway built, and mine in good order. August 1st, found two face entries being driven toward an abandoned mine, which was filled with water. Those entries are only worked on idle time and at night when there are no men in the mine, and all possible caution is used. October 16th, found what was known as the Messenger mine, which was abandoned many years ago, had been tapped. Water is being drawn by five drill holes and it is the intention of the Company to get the pillars of the Messenger mine. Found mine in good condition. November 6th, called to investigate fatal accident of George Heckenberger.

WEST LEBANON NO. 1.

Located near West Lebanon, O., on the C., A. & C. R. R. Operated by the West Lebanon Coal Co., Cleveland, O. Ed. Penman, West Lebanon, O., is superintendent, and George Kay, West Lebanon, O., mine foreman. Shaft opening, 102 feet deep, entering the No. 1 seam of coal, which is from 4 to 5 feet thick. Fan ventilation; 58 miners and 23 day men are employed. Five inspections made. February 28th, found ventilation deficient, caused by leakage in the twelve hundred (1,200) foot brattice. Suggested that there be an opening made inside of this tunnel, which would improve conditions and make it much safer. May 8th, found the third opening completed and mine in good condition. June 30th, September 21st, and December 21st, found mine in good condition.

WEST LEBANON NO. 2.

Located near No. 1, and operated by the same Company. Ed. Penman, West Lebanon, O., has full charge. Slope, 350 feet in length, entering the No. 1 seam of coal, which is 5 feet thick. Fan ventilation; 44 miners and 12 day men employed. Four visits made. February 28th, found mine suspended indefinitely. April 7th, found 22 miners driving entry. Second opening, formerly ordered, was completed, stairway built, and a twelve (12) foot fan erected. August 29th and Dec. 8th, mine in fair condition, but the brattice had not been removed.

HOLMES COUNTY.
MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.	Number of Men Employed.
Horn	Drift	John Horn	Millersburg	5
Uhl	Drift	Uhl Coal Co.	Killbuck	7
Bilderback No. 1..	Drift	D. M. Bilderback.....	Millersburg	8
Jorden	Drift	G. A. Jorden.....	Millersburg	7
Quillen	Drift	G. C. Quillen.....	Millersburg	11
Mast	Drift	M. Marquett	Holmesville	8
Lookout	Drift	W. H. Gindlesberger....	Millersburg	4
Pardy	Drift	M. Marquett	Holmesville	3
Donald	Drift	Fred Donald	Millersburg	8
Bilderback No. 2..	Drift	D. M. Bilderback.....	Millersburg	7

MEDINA COUNTY.
MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.	Number of Men Employed.
Hambleton	Drift	Cunningham Coal Co....	Wadsworth	12

STARK COUNTY.
MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.	Number of Men Employed.
C. S. C.....	Drift	C. S. B. Co.....	Mineral City	7
Rice No. 2.....	Drift	E. Rice	Osnaburg	13
East End	Drift	Zuber & Wolfe.....	Osnaburg	12
Bowen	Drift	D. Plotner	Osnaburg	10
N. F. P. No. 3....	Drift	Nat'l Fire Proofing Co..	Canton	8
Krumlauf	Drift	W. M. Krumlauf.....	Osnaburg	7
Edgefield	Slope	Silver Creek Coal Co....	New Berlin	15

SUMMIT COUNTY.
MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.	Number of Men Employed.
Monkey Run	Slope	Hametown Coal Co., R. D. 35	Barberton	7
Swinehart No. 1...	Slope	Robinson Clay Co.....	Akron	9
Swinehart No. 2...	Slope	Robinson Clay Co.....	Akron	7
Hill	Drift	Robinson Clay Co.....	Akron	13
Franklin	Shaft	Rennie Coal Co.....	Nimisila	5

WAYNE COUNTY.
MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.	Number of Men Employed.
Wayne	Slope	Lodi Coal Co.	Lodi	12
Mobile	Drift	Thomas Smith	Berea	8
California	Drift	Sieberting & Miller	Doylestown	9

COAL LIST.

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LIST OF LARGE COAL COMPANIES IN OHIO, WITH ADDRESSES,
FOR 1905.

Name of Owner or Operator.	P. O. Address.
<i>Athens County.</i>	
Carbondale Coal Co.....	Carbondale.
Columbus and Hocking Coal and Iron Co.....	Columbus.
Hisylvania Coal Co.....	Trimble.
Hocking Mining Co.....	Athens.
Imperial Coal Mining Co.....	Columbus.
A. Juniper & Sons.....	Nelsonville.
Johnson Coal Mining Co.....	Columbus.
The Luhrig Coal Co.....	Cincinnati.
The Maple Hill Coal Co.....	Nelsonville.
The McLeish Coal Co.....	Columbus.
The New Pittsburgh Coal Co.....	Columbus.
New York Coal Co.....	Columbus.
Nelsonville Sewer Pipe Co.....	Columbus.
Nelsonville Brick Co.....	Nelsonville.
Northern Fuel Co.....	Jacksonville.
Sunday Creek Company.....	Columbus.
Sedalia Coal Co.....	Chicago, Ill.
Silcott G. C.....	Nelsonville.
Schuler J. F.....	Sharpsburg.
The Customers Coal Co.....	Columbus.
The Federal Coal Co.....	Marietta.
Wells & Goodspeed.....	Nelsonville.
The Winchester Coal Co.....	Marietta.
<i>Belmont County.</i>	
American Sheet and Tin Plate Co.....	Pittsburg, Pa.
Belmont Coal Mining Co.....	Pittsburg, Pa.
Barton Coal Co.....	Cleveland.
Buckeye Coal Mining Co.....	Flushing.
Boggs E. N.....	Barton.
Carnegie Steel Co.....	Bellaire.
Captina Coal Co.....	Armstrong Mills.
The Columbia Coal Co.....	Akron.
The Carlton Coal Mining Co.....	St. Clairsville.
Empire Coal Mining Co.....	Bellaire.
The Flushing Coal Co.....	Elyria.
Johnson Coal Co.....	Bellaire.
The Kennon Coal and Mining Co.....	Cleveland.
The Lorain Coal and Dock Co.....	Cleveland.
Long & Winder.....	Bellaire.
Manufacturers Fuel Co.....	Chicago, Ill.
Media Coal Co.....	Fairmont, W. Va.
Moore's Run Coal Co.....	Fairmont, W. Va.
Malley & Johnson.....	Bellaire.
The Neffs Coal Mining Co.....	Neffs.
Pittsburgh and Cleveland Coal Co.....	Martins Ferry.
The Purselove Coal Mining Co.....	St. Clairsville.
The Provident Coal Co.....	Cleveland.
Schick & Co. M. J.....	Bellaire.
The Summit Coal and Mining Co.....	Cleveland.
The Troll Coal Mining Co.....	St. Clairsville.
The W. A. Werner Coal Co.....	Zanesville.
Whitaker-Glessner Co.....	Wheeling, W. Va.
Youghiogheny and Ohio Coal Co.....	Cleveland.
The Geo. M. Jones Co.....	Toledo.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Carroll County.</i>	
Davis Ry. Coal Co.....	Canton.
James Mining Co.....	Canton.
Magnolia Coal Co.....	Akron.
Sterling Mining Co.....	Cleveland.
The Somers Mining Co.....	Cleveland.
Van Kirk Mining Co.....	Sherrodsville.
Deveny-Kirk Coal Co.....	Salineville.
The Minerva Paving Brick Co.....	Minerva.
Malvern Clay Co.....	Malvern.
National Fire Proofing Co.....	Canton.
Big Four Clay Co.....	Malvern.
The Greer-Beatty Clay Co.....	Magnolia.
<i>Columbiana County.</i>	
The Big Vein Coal Co.....	Cleveland.
Card & Prosser Coal Co.....	Cleveland.
Fairfield Coal Co.....	Cleveland.
The Lemmon Coal Co.....	Salem.
Herriott Coal Co.....	Negley.
Ohio and Pennsylvania Coal Co.....	Cleveland.
The Ohio Coal and Coke Co.....	East Liverpool.
Powers Mining Co.....	Negley.
The Peerless Coal Mining Co.....	Cleveland.
The Prospect Hill Coal Co.....	East Palestine.
S. M. Hoon Coal Co.....	East Palestine.
Jas. S. Strabley.....	Salineville.
Wheat Hill Coal Co.....	East Palestine.
Norris Mining and Manufacturing Co.....	Pittsburg, Pa.
National Fire Proofing Co.....	Canton.
<i>Coshocton County.</i>	
Rest Coal Co.....	Columbus.
The Columbus Coal and Mining Co.....	Columbus.
The Coshocton Coal Co.....	Cleveland.
David Davis.....	Conesville.
The Morgan Run Coal and Mining Co.....	Cleveland.
The Oden Valley Coal Co.....	Coshocton.
The Wade Coal Co.....	Cleveland.
The Lorain Coal and Dock Co.....	Cleveland.
<i>Gallia County.</i>	
The Black Diamond Coal Co.....	Gallia.
Minshall Coal Mining Co.....	Columbus.
The Swan Creek Coal Co.....	Gallipolis.
<i>Guernsey County.</i>	
The Akron Coal Co.....	Akron.
The Atlas Coal Co.....	Parkersburg, W. Va.
The Byesville Coal Co.....	Byesville.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Guernsey County—Concluded.</i>	
Ellsworth & Co. Jas. W.....	Cleveland.
Forsythe Coal Co.....	Cambridge.
Imperial Mining Co.....	Cleveland.
The Loomis-Moss Coal Co.....	Akron.
The Morris Coal Co.....	Cambridge.
Morris Mining Co.....	Cleveland.
The Wills Creek Coal Co.....	Detroit, Mich.
The National Coal Co.....	Akron.
The Ohio Coal Co.....	Cambridge.
The Ohio and Northwestern Coal Co.....	Cambridge.
Puritan Coal Co.....	Cambridge.
The Toledo Coal and Clay Co.....	Toledo.
Guernsey Brick and Construction Co.....	Cambridge.
<i>Harrison County.</i>	
Adena Mining Co.....	Adena.
S. T. Crapo Coal Co.....	Detroit, Mich.
Pittsburg Block Coal Co.....	Pittsburg.
Roby Coal Co.....	Cleveland.
<i>Hocking County.</i>	
Columbus and Hocking Coal and Iron Co.....	Columbus.
Carbon Hill Mining Co.....	Carbon Hill.
John E. Jones, Jr.....	New Straitsville.
The New Pittsburg Coal Co.....	Columbus.
The Haydenville Co.....	Haydenville.
<i>Jackson County.</i>	
Alma Coal Co.....	Glen Roy.
Armstrong Coal Co.....	Jackson.
Bloomfield Mining Co.....	Jackson.
Buckeye Coal Co.....	Coalton.
The Chapman Coal Co.....	Jackson.
Cochran Coal Co.....	Jackson.
Comet Coal Co.....	Wellston.
Coalton Coal Co.....	Coalton.
The Crescent Coal Co.....	Jackson.
Commercial Coal Co.....	Jackson.
The Domestic Coal Co.....	Wellston.
The Dayton Coal and Iron Co.....	Wellston.
The Emma Coal Co.....	Jackson.
The Elkhorn Coal Co.....	Jackson.
The Fluhart Coal and Mining Co.....	Wellston.
Globe Iron Co.....	Jackson.
Gosline & Co., W. A.....	Toledo.
Hippel Coal Co.....	Coalton.
The Jackson Fuel Co.....	Oak Hill.
Jones Coal Co.....	Oak Hill.
Jones Coal Co.....	Jackson.
J. E. Jones & Co.....	Jackson.
Jones & Morgan.....	Jackson.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Jackson County — Concluded.</i>	
The Ada Coal Co.....	Jackson.
Lindeman Coal Co.....	Wellston.
Lomax Coal Co.....	McArthur.
Maddox Coal Co.....	Coalton.
Zagelmeyer Coal Mining Co.....	West Bay City, Mich.
The Ohio Portland Cement Co.....	Wellston.
McKittrick Coal Co.....	Jackson.
The Northern Coal and Mining Co.....	Jackson.
Ohio Fire Brick Co.....	Oak Hill.
Peerless Coal and Iron Co.....	Columbus.
Wm. Rowe & Son.....	Coalton.
Southern Ohio Coal Co.....	Wellston.
The Superior Coal Co.....	Jackson.
Star Furnace Co.....	Jackson.
Symms Creek Coal Co.....	Rempel.
The Milton Coal Co.....	Wellston.
Henry Hollberg.....	Jackson.
The Tom Corwin Coal Co.....	Dayton.
Wellston Fuel Co.....	Wellston.
W. Tibbals & Co.....	Jackson.
The Wellston Coal Co.....	Wellston.
The Wood Coal Co.....	Jackson.
T. J. Evans.....	Coalton.
See Kay Coal Co.....	Glen Roy.
Henry Pritchard.....	Coalton.
Rottinghaus Coal Co.....	Dayton.
Oak Hill Fire Brick Co.....	Oak Hill.
Davis Fire Brick Co.....	Oak Hill.
<i>Jefferson County.</i>	
American Sewer Pipe Co.....	Pittsburg, Pa.
Dexter Coal Co.....	Pittsburg, Pa.
The Eastern Ohio Coal Co.....	Cleveland.
The Glens Run Coal Co.....	Cleveland.
The Jefferson Coal Co.....	Cleveland.
John L. Kirk & Co.....	Bergholz.
La Belle Iron Works.....	Steubenville.
Lewis Coal and Coke Co.....	Warrenton.
The Morris-Posten Coal Co.....	Dunglen.
O'Neil Coal Mining Co.....	Pittsburg, Pa.
Ohio and Pennsylvania Coal Co.....	Cleveland.
Rayland Coal Co.....	Rayland.
The Roby Coal Co.....	Cleveland.
The Russell Coal and Mining Co.....	Steubenville.
The Steubenville Coal and Mining Co.....	Steubenville.
Toronto Fire Clay Co.....	Toronto.
The United States Coal Co.....	Cleveland.
M. L. Williams Coal and Coke Co.....	Pittsburg, Pa.
The Witch Hazel Coal Co.....	Youngstown.
Wayne Coal Co.....	Pittsburg, Pa.
W. & L. E. Coal and Mining Co.....	Cleveland.
James Sneaks.....	Steubenville.
The Wabash Coal Co.....	Cleveland.
Geo. A. Laughlin Coal Co.....	Wheeling, W. Va.
Youghiogheny and Ohio Coal Co.....	Cleveland.
The Panhandle Coal Co.....	Cleveland.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Lawrence County.</i>	
The Black Fork Coal Co.....	Black Fork.
Buckhorn Coal Co.....	Olive Furnace.
The Ginn Company.....	Ironton.
The Halley Coal Co.....	Pedro.
The Jno. F. Hall Coal Co.....	Dayton.
Kelley Nail and Iron Co.....	Ironton.
B. F. Lynd.....	Ironton.
Coal Grove Coal and Stone Co.....	Coal Grove.
<i>Mahoning County.</i>	
McKinley Coal Co.....	Beloit.
The Ohio Coal and Clay Co.....	Washingtonville.
The Youngstown and Southern Ry. Co.....	Youngstown.
The Lowell Coal Mining Co.....	Youngstown.
Zimmerman & Orr.....	Salem.
<i>Medina County.</i>	
Card & Prosser Coal Co.....	Cleveland.
James & Paynter Coal Co.....	Cleveland.
Hutchinson Coal Co.....	Wadsworth.
Ohio Salt Co.....	Wadsworth.
Cunningham Coal Co.....	Wadsworth.
<i>Meigs County.</i>	
Bengel Bros. Mining Co.....	Pomeroy.
Coal Ridge Salt Co.....	Pomeroy.
Peacock Coal Co.....	Pomeroy.
Maynard Bros.	Columbus.
Hocking Valley Fuel Co.....	Columbus.
Martin Ebersbach	Pomeroy.
Wm. C. Russell.....	Middleport.
Sutton Coal Co.....	Pomeroy.
Pittsburg Mining Co.....	Minersville.
Buckeye Salt Co.....	Pomeroy.
<i>Morgan County.</i>	
Carding Coal Co.....	Columbus.
The Tropic Mining Co.....	Toledo.
<i>Muskingum County.</i>	
Walnut Hill Coal Mining Co.....	Detroit, Mich.
Duncan Run Coal Mining Co.....	Detroit, Mich.
The Elk Coal Co.....	Columbus.
The Fair Oaks Coal Mining Co.....	Columbus.
The Fobes-Thompkins Coal Co.....	Columbus.
Maynard Bros.	Columbus.
The Muskingum Coal and Ry. Co.....	Zaresville.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Muskingum County — Concluded.</i>	
Jno. L. Reid.....	Zanesville.
The Siler Coal Co.....	McConnellsville.
W. J. Scully.....	Detroit, Mich.
The W. A. Werner Coal Co.....	Zanesville.
Blue Rock Coal Co.....	Gaysport.
<i>Noble County.</i>	
Imperial Mining Co.....	Cleveland.
Belle Valley Coal Mining Co.....	Cambridge.
<i>Perry County.</i>	
Bristol Coal Co.....	Newark.
Columbus and Hocking Coal and Iron Co.....	Columbus.
Chicago and Hocking Coal Co.....	Columbus.
Davis Bros.	Shawnee.
Essex Coal Co.....	New Straitsville.
Griffith & Abram.....	Shawnee.
Gosline & Co., W. A.....	Toledo.
Ambrose Gibbs	New Straitsville.
Geo. Gibbs	New Straitsville.
Minshall Coal Co.....	Columbus.
The Hamilton & Wallace Coal Co.....	Saltillo.
Imperial Coal Mining Co.....	Columbus.
Indian Run Mining Co.....	Wellston.
Jenkins & Redfern.....	Shawnee.
The Jones Coal Co.....	New Straitsville.
The Peabody Coal Co.....	Chicago, Ill.
The Kennon Coal and Mining Co.....	Cleveland.
Maynard Bros.	Columbus.
The Wills Creek Coal Co.....	Detroit, Mich.
New England Coal Co.....	Columbus.
R. Johnson & Sons.....	New Straitsville.
David S. Richards.....	Shawnee.
The Union Coal Mining Co.....	Columbus.
The Standard-Hocking Coal Co.....	Chicago, Ill.
Sunday Creek Company.....	Columbus.
Taylor & Price.....	New Straitsville.
The 20th Century Coal Co.....	Columbus.
The Upson Coal and Mining Co.....	Shawnee.
A. Simons	Redfield.
Taylor, Williams & Jenkins.....	Shawnee.
Zanesville Coal Co.....	Zanesville.
The Chapman Mining Co.....	Moxahala.
Sines Bros. & Co.....	New Straitsville.
<i>Portage County.</i>	
The Hutson Coal Co.....	Lloyd.
South Palmyra Coal Co.....	Cleveland.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Scioto County.</i>	
Eifort Coal Co.....	Eifort.
M. A. Clutts.....	Eifort.
Hanging Rock Iron Co.....	Franklin Furnace
<i>Stark County.</i>	
Booth Coal Co.....	Navarre.
Robertson & Bray.....	Paris.
The Cleveland-Massillon Coal Co.....	Cleveland.
A. C. Dustman.....	Alliance.
Eli Bros.	Alliance.
The Steiner Coal Co.....	Canton.
The Massillon Elm-Run Coal Co.....	Cleveland.
The Massillon Coal Mining Co.....	Massillon.
The Newmans Creek Coal Co.....	Massillon.
The Pocock Coal Co.....	Massillon.
L. C. Smith.....	Greentown.
Silver Creek Coal Co.....	New Berlin.
G. F. Smith Coal Co.....	New Berlin.
The South Massillon Coal Co.....	Massillon.
J. G. Lahmiller.....	Canton.
The Harring-Wilson Coal Co.....	Massillon.
The Whitacre Fire Proofing Co.....	Waynesburg.
Theo. F. Giltz.....	East Massillon.
National Fire Proofing Co.....	Canton.
Fred Hess Coal Co.....	Navarre.
H. B. Camp Co.....	Pittsburg.
<i>Summit County.</i>	
Cottage Grove Coal Co.....	South Akron.
The Beechwood-Massillon Coal Co.....	Cleveland.
Brewster Coal Co.....	Akron.
Hametown Coal Co.....	Barberton.
The White Oak Coal Co.....	Cleveland.
<i>Trumbull County.</i>	
Witch Hazel Coal Co.....	Youngstown.
<i>Tuscarawas County.</i>	
American Sheet and Tin Plate Co.....	Pittsburg, Pa.
Howell Williams & Son.....	Midvale.
Beaver Dam Coal Co.....	Cleveland.
The Dennison Mining Co.....	Dennison.
The Cleveland and Tuscarawas Coal Co.....	Cleveland.
Shanesville Coal Co.....	Cleveland.
East Goshen Coal Co.....	Cleveland.
Goshen Hill Coal Co.....	Cleveland.
Goshen Coal and Mining Co.....	Cleveland.
Goshen Coal Co.....	Cleveland.
The Goshen Central Coal Co.....	Massillon.

LIST OF LARGE COAL COMPANIES IN OHIO, ETC. — Concluded.

Name of Owner or Operator.	P. O. Address.
<i>Tuscarawas County—Concluded.</i>	
The Hiawatha Coal Co.....	Toledo.
Midvale-Goshen Coal Co.....	Cleveland.
Mineral City Coal Co.....	Mineral City.
Massillon-Tuscarawas Coal Co.....	Massillon.
Jas. Mullins Coal Co.....	Cleveland.
Geo. J. Markley.....	Mineral City.
C. J. Nungesser.....	Beidler.
The Novelty Brick and Coal Co.....	Newcomerstown.
Kollar & Quinn.....	New Philadelphia.
Ridgway Burton Co.....	Cleveland.
Horace E. Cole.....	Midvale.
The Reeves Coal Co.....	Canal Dover.
Somerdale Coal Co.....	Cleveland.
The Somers Mining Co.....	Cleveland.
Schindler Bros.....	Tuscarawas.
Van Kirk Coal and Mining Co.....	Mineral City.
The C. A. Townsend Coal Co.....	Cleveland.
Carbon Coal Co.....	Toledo.
The Federal Clay Product Co.....	Mineral City.
C. E. Holden.....	Mineral City.
Robinson Clay Product Co.....	Akron.
<i>Vinton County.</i>	
Alma Cement Co.....	Oreton.
Avenelle Coal Co.....	Zaleski.
Cornelia Mining Co.....	Wellston.
The Elk Fork Coal Co.....	Elk Fork.
The Gallia Mining Co.....	Jackson.
John L. Lawler.....	Columbus.
The Mohr-Minton Coal Co.....	Columbus.
The Star Coal Co.....	McArthur.
The Outhwaite Coal Co.....	Rockaway.
The Warren Jones Coal Co.....	Wellston.
<i>Wayne County.</i>	
The Card & Prosser Coal Co.....	Cleveland.
The Massillon Coal Mining Co.....	Massillon.
The Massillon-Navarre Coal Co.....	Cleveland.
Wayne Coal Co.....	Lodi.
West Lebanon Coal Co. The.....	Cleveland.

IRON ORE.

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IRON ORE MINES.

Name of Owner or Operator.	P. O. Address.
<i>Lawrence County.</i>	
The Hanging Rock Iron Co.....	Hanging Rock.
The Vernon Iron Co.....	Campbell.
The McGugin Iron and Coal Co.....	Olive Furnace.
John Bradshaw	Culbertson.
<i>Scioto County.</i>	
Morgan & Horton.....	Eifort.
M. A. Clutts.....	Eifort.
The Hanging Rock Iron Co.....	Hanging Rock.
<i>Vinton County.</i>	
Alma Cement Co.....	Oreton.

FIRE CLAY.

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FIRE CLAY MINES.

Name of Owner or Operator.	P. O. Address.
<i>Athens County.</i>	
The Nelsonville Sewer Pipe Co.....	Nelsonville.
The Athens Brick Co.....	Athens.
<i>Carroll County.</i>	
The Robinson Clay Product Co.....	Akron.
Seaman Plaster Co.....	Canton.
Deveny-Kirk Coal Co.....	Salineville.
Big Four Clay Co.....	Malvern.
The Greer-Beatty Clay Co.....	Magnolia.
National Fire Proofing Co.....	Canton.
The Minerva Paving Brick Co.....	Minerva.
Malvern Clay Co.....	Malvern.
<i>Columbiana County.</i>	
Champion Clay Co.....	Wellsville.
Thompson Pottery Co., 237 Bradshaw Ave.....	East Liverpool.
Negley Clay Co.....	Negley.
The McLain Fire Brick Co.....	Pittsburg, Pa.
The Vulcan Clay and Brick Co.....	Wellsville.
Norris Mining and Mfg. Co., 207 House Bldg.....	Pittsburg, Pa.
National Fire Proofing Co.....	Canton.
The Columbia Fire Clay Co.....	Cleveland.
Card & Prosser Coal Co.....	Cleveland.
<i>Coshocton County.</i>	
J. J. Christner & Sons.....	Baltic.
<i>Guernsey County.</i>	
The Guernsey Brick and Construction Co.....	Cambridge.
<i>Harrison County.</i>	
J. C. Jamison.....	Cadiz.
<i>Hocking County.</i>	
C. & H. C. & I. Co.....	Columbus.
The Logan Brick Mfg. Co., Box 56.....	Toledo.
The Haydenville Co.....	Haydenville.
The Columbus Brick and Terra Cotta Co.....	Columbus.
<i>Holmes County.</i>	
Millersburg Brick and Tile Co.....	Millersburg.
Redett & Sons.....	Fredericksburg.

FIRE CLAY MINES — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Jackson County.</i>	
Oak Hill Fire Brick and Coal Co.....	Oak Hill.
Davis Fire Brick Co.....	Oak Hill.
<i>Jefferson County.</i>	
Standard Fire Brick Co., 1215 Empire Bldg.....	Pittsburg, P.
American Sewer Pipe Co.....	Pittsburg, P.
Myers Clay Mfg. Co.....	Toronto.
Adolph Pritschaw	Irondale.
The East Ohio Sewer Pipe Co.....	Irondale.
Toronto Fire Clay Co.....	Toronto.
W. E. Smith.....	Wellsville.
The Stratton Fire Clay Co.....	Empire.
Ohio River Sewer Pipe Co.....	Empire.
The Minor Fire Brick Co.....	Empire.
<i>Lawrence County.</i>	
The Black Fork Coal Co.....	Black Fork.
Thos. McConnell	Steece.
The Ironton Portland Cement Co.....	Ironton.
The Hanging Rock Iron Co.....	Hanging Rock.
<i>Mahoning County.</i>	
M. J. Dustman.....	Berlin Center.
Greenford Fire Clay Co.....	Greenford.
<i>Muskingum County.</i>	
W. H. Weller.....	Zanesville.
American Sand Co.....	Columbus.
Geo. Milhollin, R. D. No. 3.....	Zanesville.
S. M. Stump, R. D. No. 11.....	Zanesville.
The South Zanesville Sewer Pipe and Brick Co.....	South Zanesville.
Chauncey Ford	Roseville.
A. Emery	Zanesville.
<i>Perry County.</i>	
H. E. Stoneburner.....	Crooksville.
The New Lexington Pressed Brick Co.....	New Lexington.
S. E. Hightshoe.....	Somerset.
The Iron Clay Brick Co.....	Columbus.
Davis Bros.	Shawnee.
<i>Scioto County.</i>	
The Scioto Fire Brick Co.....	Sciotoville.
Portsmouth Harbison Walker Co.....	Portsmouth.
The Buckeye Fire Brick and Clay Co.....	Scioto Furnace.
M. A. Clutts.....	Eifort.

FIRE CLAY MINES — Concluded.

Name of Owner or Operator.	P. O. Address.
<i>Stark County.</i>	
The H. B. Camp Co.....	Aultman.
The Whitacre Fire Proofing Co.....	Waynesburg.
The Keim Brick and Tile Co.....	Louisville.
Massillon Stone and Fire Brick Co.....	Massillon.
National Fire Proofing Co.....	Canton.
Louisville Brick and Tile Co.....	Louisville.
The Everhard Company.....	Massillon.
The Canton Hollow Block Co.....	Canton.
Skelton Bros., 2229 So. Market St.....	Canton.
<i>Summit County.</i>	
The Akron Roofing Tile Co.....	Akron.
The Akron Clay Co.....	Akron.
J. A. Stetler.....	Lake.
H. I. Swinehart.....	East Akron.
U. S. Stoneware Co.....	Akron.
The Robinson Clay Product Co.....	Akron.
The H. B. Camp Co.....	Aultman.
<i>Tuscarawas County.</i>	
Globe Clay Co.....	Newcomerstown.
Paul Clay Co.....	Akron.
Dover Fire Brick Co.....	Strasburg.
American Sewer Pipe Co.....	Pittsburg, Pa.
The Advance Fire Clay Co.....	Uhrichsville.
The National Fire Brick Co.....	Strasburg.
The Buckeye Fire Clay Co.....	Uhrichsville.
The Robinson-Graves Sewer Pipe Co.....	Uhrichsville.
The Robinson Clay Product Co.....	Akron.
Geo. J. Markley.....	Mineral City.
C. E. Holden.....	Mineral City.
The Federal Clay Product Co.....	Mineral City.
Carbon Coal Co.....	Toledo.
<i>Vinton County.</i>	
Alma Cement Co.....	Oreton.

LIMESTONE.

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LIMESTONE MINES AND QUARRIES.

Name of Owner or Operator.	P. O. Address.
<i>Adams County.</i>	
John McNeilen, R. D. No. 2, Box 77.....	West Union.
<i>Allen County.</i>	
The Buckeye Stone Co.....	Bluffton.
L. E. Patterson.....	Bluffton.
D. P. Schumacher.....	Bluffton.
Patterson Bros. & Co.....	Ada.
Pugh Stone Co., 905 E. High St.....	Lima.
E. J. Ford.....	Delphos.
Robert Mollett.....	Bluffton.
Watt Bros.	Herring.
J. W. Long, R. D. No. 3.....	Lima.
E. Gray & Sons.....	Lima.
Frank Roush, Box 263.....	Lima.
C. Geiger, 526 Northwest St.....	Lima.
C. L. Sanford.....	Lima.
M. P. Goitschius.....	Ottawa.
<i>Butler County.</i>	
Chas. Wriggle, Sta. "A".....	East Hamilton.
Sidney L. Dodsworth, R. D. No. 2.....	Hamilton.
Jos. Maier, R. R. No. 4.....	Hamilton.
Edw. Burkhart.....	Hamilton.
L. H. Hill, R. D. No. 1.....	Hamilton.
Daniel Pabst, No. 38 High St.....	Hamilton.
J. M. Killough.....	College Corners.
<i>Clark County.</i>	
Baker, Loser & Enlitt.....	Springfield.
Geo. F. Newcamp.....	Springfield.
The H. H. Moores Co., Box 585.....	Springfield.
C. F. Jackson, No. 52 So. Light St.....	Springfield.
E. L. Rubsam.....	Springfield.
Jno. W. Jenkins, Box 253.....	Springfield.
The Moores Lime Co., Box 467.....	Springfield.
Mills Bros.	Springfield.
S. S. Taylor, No. 85 Sherman Ave.....	Springfield.
The Casparis Stone Co.....	Columbus.
The Strunk-Meyer Lime Co.....	Cold Springs.
<i>Clermont County.</i>	
Erastus Hulick.....	Batavia.
H. W. Harlow.....	Williamsburg.
<i>Clinton County.</i>	
W. O. Beam.....	Port Clinton.

LIMESTONE MINES AND QUARRIES — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Clinton County — Concluded.</i>	
Bert Bloom	Wilmington.
J. H. Thompson	Wilmington.
Lewis Brandt	Blanchester.
J. M. Foster	W. Woodville.
John Ballard	Wilmington.
Asa Starbuck, R. R. No. 1	Wilmington.
G. M. Oglesbee	New Burlington.
G. H. Benlehr, R. R. No. 2	Wilmington.
Bloom & Conner	Wilmington.
<i>Columbiana County.</i>	
Geo. W. Crook	New Waterford.
<i>Crawford County.</i>	
Sousley Bros.	Ada.
Gus V. Harer	Lykens.
The Brokensword Stone Co.	Bucyrus.
Jos. Snaveley, R. D. No. 7	Bucyrus.
<i>Delaware County.</i>	
H. E. Kendrick	Delaware.
M. Meredith & Son	Radnor.
F. L. Campbell, Montros Ave.	Delaware.
<i>Erie County.</i>	
Wm. Hendrickson	Sandusky.
Henry R. Barnes, R. R. No. 2	Sandusky.
Kelley Island Lime and Transport Co.	Cleveland.
Chas. W. & W. L. Krueger, R. R. No. 2	Sandusky.
The Wagner Stone Co.	Sandusky.
<i>Franklin County.</i>	
Harry Walcutt, Sta. "A"	Columbus.
Scioto Stone Co.	Columbus.
Franklin Stone Co.	Columbus.
The Casparis Stone Co.	Columbus.
J. C. Thompson, No. 933 Mt. Pleasant Ave.	Columbus.
Eva McNinch, No. 116 No. Central Ave.	Columbus.
A. G. Waterman	Columbus.
Wm. Miller, No. 95 No. Central Ave.	Columbus.
The Columbus Stone Co., Carnegie Bldg.	Pittsburg, Pa.
<i>Greene County.</i>	
Mallow & Long	Xenia.
W. P. Anderson, R. R. No. 2	Xenia.

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STONE MINES AND QUARRIES — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Greene County — Concluded.</i>	
Geo. C. Toland.....	Jamestown.
D. S. Ervin Co.....	Cedarville.
Boots & Conklin, R. D. No. 8.....	Xenia.
<i>Hamilton County.</i>	
J. J. Schmitz, Sta. O.....	Cincinnati.
Theo. Connelle.....	Madisonville.
Grant Bros., Sta. O., Hyde Park.....	Cincinnati.
The Loveland Stone Co., Builders and Traders Ex.....	Cincinnati.
Chas. M. Field, Sta. R., R. D. No. 5.....	Cincinnati.
Floyd Campbell, No. 1031 Foraker Ave.....	Cincinnati.
Benj. Cooney, No. 718 Whittier St., Avondale.....	Cincinnati.
Cincinnati Board Public Service, City Hall.....	Cincinnati.
Herman Howe, No. 225 Stark St.....	Cincinnati.
<i>Hancock County.</i>	
The Holran Stone Co.....	Fostoria.
Tarbox & McCall.....	Findlay.
Clo Edgington.....	McComb.
Wm. A. Bibler.....	Arlington.
Parlee T. Finton.....	Findlay.
Mrs. E. Hirscher & Son, 836 So. Blanchard St.....	Findlay.
J. W. Wells & Son, 745 E. Sandusky St.....	Findlay.
<i>Hardin County.</i>	
Jno. Herzog.....	Patterson.
D. R. McArthur & Co.....	Kenton.
E. H. France Sons.....	Bloomville.
Jas. G. Tressel.....	Ada.
<i>Highland County.</i>	
Frank Sharp.....	Lynchburg.
R. P. Pinkerton, R. D. No. 7.....	Hillsboro.
Chas. Rosher, R. D. No. 1.....	Leesburg.
The Hillsboro Stone Co., Builders and Traders Ex.....	Cincinnati.
W. E. Alexander, R. R. No. 2.....	Lynchburg.
<i>Jackson County.</i>	
W. B. Yates, Box 15.....	Jackson.
B. Eicher.....	Oak Hill.
<i>Lawrence County.</i>	
The Vernon Iron Co.....	Campbell.
Ptolemy Peters.....	Culbertson.
John Bradshaw.....	Culbertson.

LIMESTONE MINES AND QUARRIES — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Lawrence County — Concluded.</i>	
Mike Riley	Ort.
The McGugin Iron and Coal Co.....	Olive Furnace.
John Burke	Ironton.
The Halley Coal Co.....	Pedro.
Thos. McConnell	Steece.
The Hanging Rock Iron Co.....	Hanging Rock.
The Ironton Portland Cement Co.....	Ironton.
<i>Logan County.</i>	
John Spencer	New Richland.
Cochran & Heath	Middleburg.
The East Liberty Stone Co.....	Bellefontaine.
H. M. Brown & Son, Box 11.....	Belle Center.
Bellefontaine Stone and Lime Co.....	Bellefontaine.
Ned McClure	Huntsville.
<i>Lucas County.</i>	
The Flint Stone Co., 202 Nat'l Union Bldg.....	Toledo.
Ryan & Munea	Maumee.
Ryan & Roach	Waterville.
J. L. Pray & Son.....	Whitehouse.
<i>Marion County.</i>	
The Central Ohio Lime and Stone Co.....	Marion.
D. M. Hinman.....	Marion.
John D. Owen & Son.....	Owen.
J. G. Fairbanks.....	Marion.
The Norris & Christian Stone and Lime Co.....	Marion.
The John Evans Limestone Co.....	Marion.
<i>Mercer County.</i>	
Ft. Recovery Lime Co.....	Ft. Recovery.
<i>Miami County.</i>	
H. E. Ehler.....	Ludlow Falls.
P. R. Schumann.....	Covington.
The Tippecanoe Bldg. and Mfg. Co.....	Tippecanoe City.
J. N. Hodge.....	Troy.
Chas. H. Jackson.....	Covington.
R. H. Studebaker.....	Rex.
S. M. McLaughlin.....	Covington.
C. P. Hoover, R. R. No. 4.....	Covington.
J. W. Ruhl.....	Covington.
D. L. Face.....	Covington.
The Ohio Marble Co.....	Piqua.
The D. C. Stalter Co.....	Piqua.
F. M. Coppock.....	Ludlow Falls.
J. L. Reck.....	West Milton.

LIMESTONE MINES AND QUARRIES — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Montgomery County.</i>	
Samuel Miller	Brookville.
Henry Troutman	Brookville.
A. J. Shaffer	Brookville.
H. M. Evans	Englewood.
Jacob Sezbola, R. R. No. 3	Dayton.
H. B. Shoup, R. R. No. 3	Dayton.
Theodore Julick	Trotwood.
Ed. Kimmel	Trotwood.
John Julick	Trotwood.
Lewis & Talbott Stone Co.	Dayton.
<i>Ottawa County.</i>	
The Kelley Island Lime and Transport Co.	Cleveland.
Jos. Kingham, M. D.	Rocky Ridge.
<i>Paulding County.</i>	
Bobbenmyer, Sherrard & Randolph	Oakwood.
<i>Pickaway County.</i>	
Mrs. B. Z. McCoy	Circleville.
<i>Preble County.</i>	
Philip Deem	Lewisburg.
Reinheimer Bros.	New Paris.
Chas. Pierce	Camden.
James White	Camden.
H. W. Homsher and Heirs	Camden.
G. B. Allen	Morning Sun.
J. W. Graham	College Corners.
J. O. Willson	College Corners.
D. & W. Traction Co.	West Alexandria.
Richard Danily	New Paris.
Peter Fouts	Camden.
F. J. Wilson	Lewisburg.
James A. Kautz	Eaton.
O. M. Wright	College Corners.
<i>Putnam County.</i>	
M. P. Goitschius	Ottawa.
Holmes & Kenneke	Columbus Grove.
F. M. Sweaney & Co.	Gomer.
L. A. Romer	Vaughnsville.
D. P. Schumacher & Son	Bluffton.
Nick Lauer	Ottoville.
Ft. Jennings Stone Co.	Ft. Jennings.
J. J. Guffy & Son	Vaughnsville.
T. W. Thomas	Rimer.
G. P. Doriot	Pandora.

LIMESTONE MINES AND QUARRIES — Continued.

Name of Owner or Operator.	P. O. Address.
<i>Ross County.</i>	
G. W. Rucker.....	Greenfield.
<i>Sandusky County</i>	
Geo. W. Shreffler.....	Fremont.
S. A. Swint.....	Fremont.
Thos. Shearer.....	Woodville.
The Standard Lime Co.....	Gibsonburg.
The Woodville White Lime Co.....	Woodville.
Engle & Hasselbach.....	Bellevue.
The Bellevue Stone Co.....	Bellevue.
B. Saner.....	Fremont.
Gotttron Bros.....	Fremont.
<i>Scioto County.</i>	
Morgan & Horton.....	Eifort.
M. A. Clutts.....	Eifort.
<i>Seneca County.</i>	
J. H. Brown.....	Scipio Siding.
D. L. Fisher.....	Bloomville.
Thompson Twp. Quarry.....	Flat Rock.
Stephen A. Saul.....	Bloomville.
Mrs. J. D. Vogt.....	Scipio Siding.
Armstrong & Hershberger.....	Scipio Siding.
J. F. Harpster.....	Flat Rock.
The McCollum Lime Co.....	Tiffin.
Frank Morcher.....	Tiffin.
Weot Lime and Stone Co.....	Tiffin.
E. H. France Sons.....	Bloomville.
Fred Sievert.....	Bloomville.
Spence Bros., 2923 Euclid Ave.....	Cleveland.
<i>Stark County.</i>	
Clapsaddle Lime Co.....	Marlboro.
The Horning Bros. Co.....	Kent.
David L. Warstler, R. D. No. 1.....	Middle Branch.
The Diamond Portland Cement Co.....	Middle Branch.
The Cleveland Brick Co.....	Canton.
F. Heims.....	Waco.
Skelton Bros., 2229 So. Market St.....	Canton.
<i>Van Wert County.</i>	
Appinziller & Mergler.....	Greenville.
France & Manship.....	Van Wert.
J. W. Bowersock & Co., R. D. No. 7.....	Ft. Jennings.
France & Ireland.....	Van Wert.
Clover Leaf Stone Co.....	Willshire.
J. B. Carey, R. D. No. 1.....	Convoy.
W. J. Semple, R. R. No. 10.....	Van Wert.
E. H. France Sons.....	Bloomville.
Arthur L. Fisher.....	Delphos.

LIMESTONE MINES AND QUARRIES—Concluded.

Name of Owner or Operator.	P. O. Address.
<i>Vinton County.</i>	
Alma Cement Co.....	Oreton.
<i>Wood County.</i>	
Patterson & Kroft.....	Ada.
Powell, Ryan & Wixson.....	No. Baltimore.
E. T. Reed.....	Elmore.
Spratt & Nichols.....	Grover Hill.
James S. Miller.....	Bowling Green.
C. J. Miller & Co., 107 Chamber of Commerce	Toledo.
Crawford & Zapfe, 510 Spitzer Bldg.....	Toledo.
Henry P. Meyer, R. D. No. 1.....	No. Baltimore.
Geo. E. Mercer.....	Bowling Green.
The Urschel Lime Co.....	Sugar Ridge.
Doherty & Co.....	Toledo.
The Buckeye Lime Co.....	Genoa.
Thos. Shearer	Woodville.
Jos. Patterson, 923 W. Spring St.....	Lima.

NOTICE.

The regular custom of publishing the Mining Laws in the annual report of this Department has been dispensed with, as changes in them are anticipated during the session of the coming General Assembly. The regular mining laws may be had in pamphlet form free of charge by addressing this Department.

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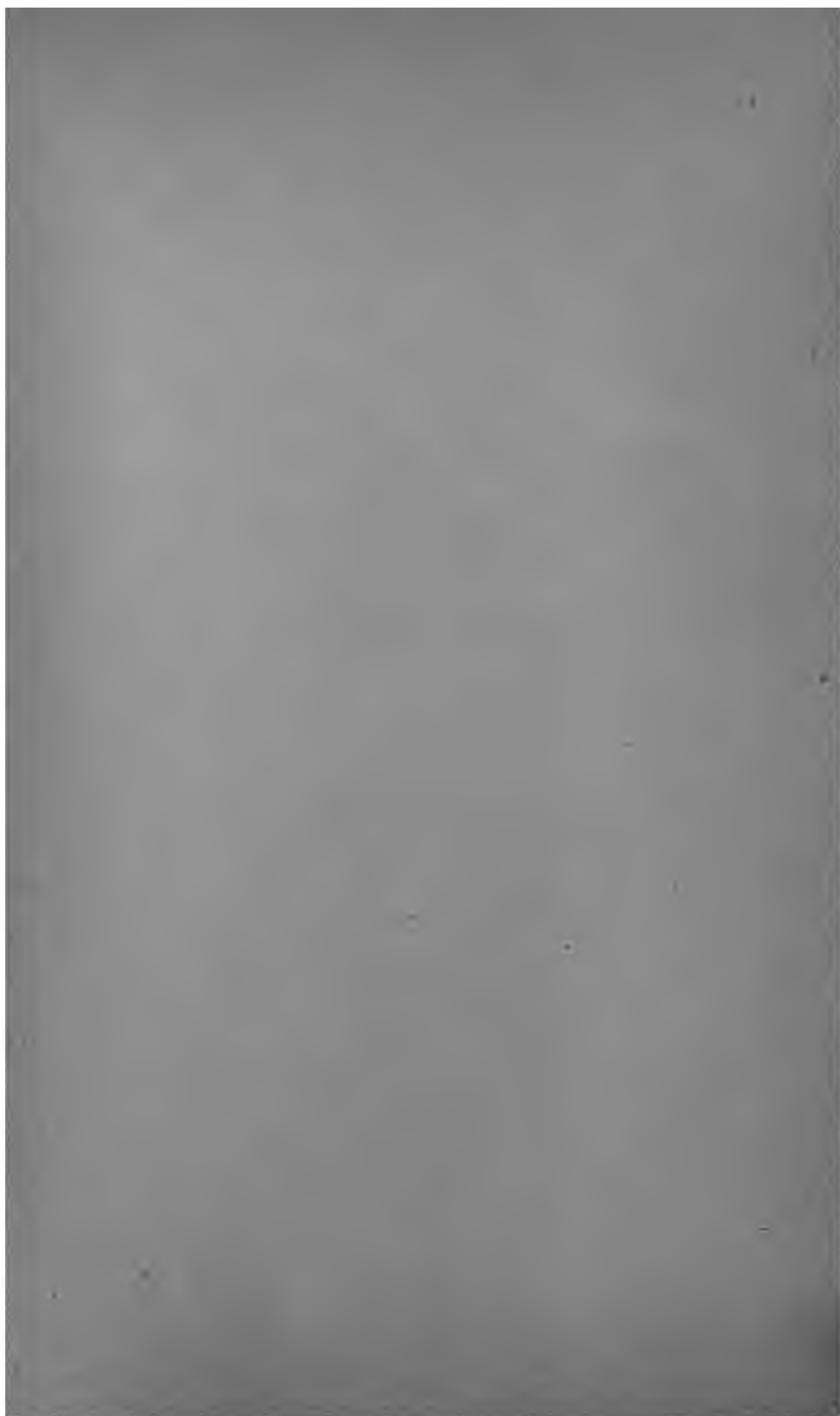
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1871

1872

1873

1874

1875

